




National Safety News

JANUARY 1951



Want to *cut*  *respirator costs... stimulate willing*  *usage... increase overall safety*  ?

HERE'S HOW ONE LARGE COMPANY DID

A large steel company had health hazards from non-use of respirators . . . and cost hazards from excessive loss and damage. They cleaned up the problem so successfully that voluntary use of respirators has doubled . . . equipment life has been extended . . . and employee efficiency increased. Here's how . . .



All used respirators are collected daily, brought to cleaning room.



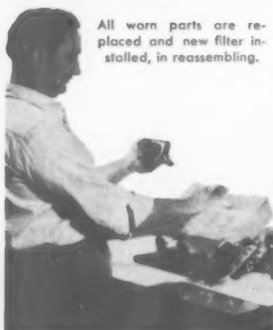
Greasy and paint-spray units are hand scrubbed. Small parts go in washer.



Face-pieces get a sterilizing shower bath in an industrial dish-washing machine.



All parts get a disinfectant spray, are dried in a steam cabinet.



All worn parts are replaced and new filter installed, in reassembling.



Each respirator gets a cellophane wrap, is then bagged for delivery.



Every worker gets a sterile respirator every day . . . and he wears it!



MSA DUSTFOE Respirator



MSA COMFO Respirator

You, too, may find a respirator "Laundry Service" will solve your usage-cost problems. You're sure to find, at MSA, an easily maintained respirator specifically designed to meet any protectable hazard. The MSA "Dustfoe" and "Comfo," illustrated at right, are highly useful items in the complete respirator line. If you would like detailed information on the "laundry" . . . write for reprint.

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Style No. TAWS1
For Heavy Duty



Style No. DL48
For Hot Jobs


WILLSON*
Dependable Products Since 1870
*T.M. Reg. U.S. Pat. Off.

For your convenience, Willson Distributors are listed on page 114.

NATIONAL SAFETY NEWS

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27,850 copies of this issue were printed

BILL ANDREWS, *Editorial Director* CARMAN FISH, *Editor*
NORVAL BURCH, *Associate Editor* ROBERT L. MEYER, *Associate Editor*
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NATIONAL SAFETY NEWS is published monthly by National Safety Council. Copyright 1950 by National Safety Council. Printed in U.S.A. Entered as second class matter June 21, 1921, at the Post Office at Chicago, Illinois, under the act of March 3, 1879. Subscription rate: To members, \$5.00 per year, single copies, 50 cents; to non-members, \$7.50 per year, single copies, 75 cents. Quantity prices for yearly subscriptions and single issues on request. Member Audit Bureau of Circulation. Indexed in Industrial Arts Index.

Statements and opinions advanced in signed articles are personal expressions of the authors, not necessarily those of the National Safety Council.

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Look what the "cat" dragged in

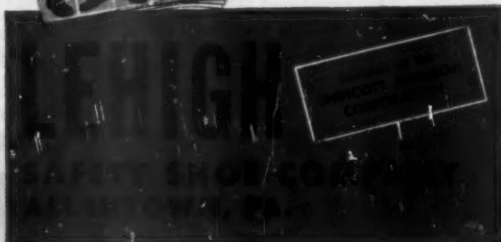


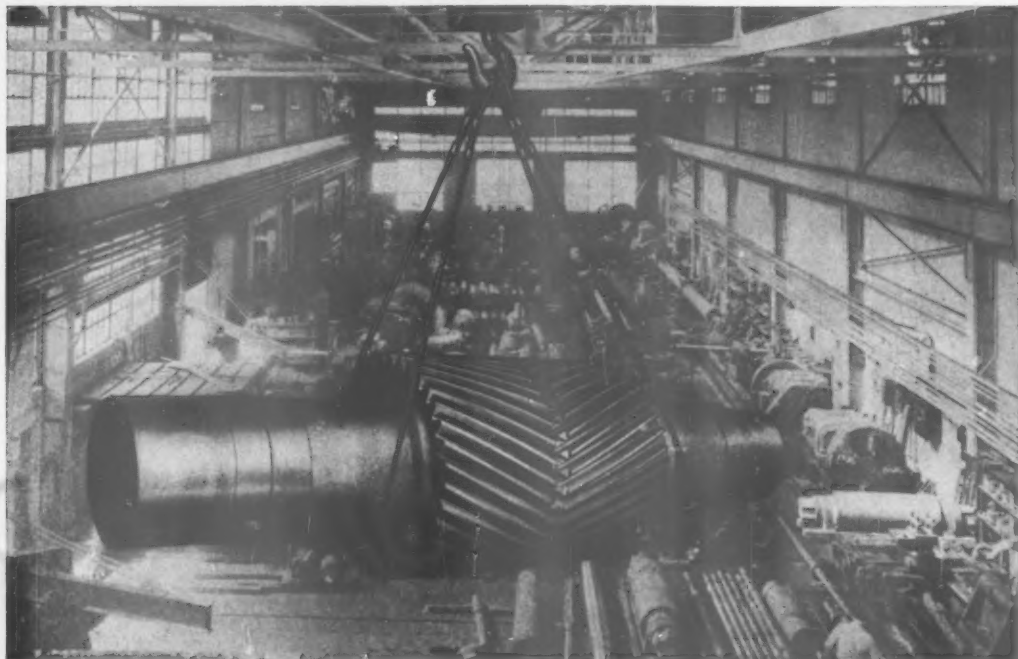
Charley Grecco has a soft spot in his heart for Lehigh Safety Shoes. This one saved him from being crippled for life! He was standing on the "cat" track of a bulldozer when the machine slipped in gear and started to roll. His shoe was gripped in the treads . . . mangled against the frame! But Lehigh's extra-tough construction proved its worth again. The steel toe box was barely dented. The sole-leather counter kept the back of his foot from being sheared off. The "cat" treads gouged through the double leather sole...but stopped against the steel arch-shank underneath. When he got the shoe off, Charley had a couple of bruises...nothing worse. Want guts in your safety shoes? This is how LEHIGH builds them all!



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ACCO Registered Wire Rope Slings provide positive safety factors of 5 to 1. They are factory-made, proof-tested with a load double the rated capacity, then registered. This written and signed Register certifies that only **Preformed**

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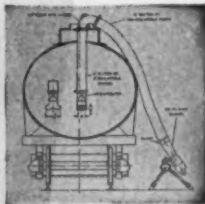
VANO Design "A" VENTILATOR



Vano Design "A" cooling interior of furnace, supplying fresh air through 10 feet of "Ventube" to provide safety and comfort during repair work.

Vano Design "A" delivering fresh air to cable manhole, expelling sewer gas, making entrance safe in a few minutes.

Vano Design "A" Ventilator plus a few accessories feeds large air volume into tank car, driving out fumes, stagnant or hot air for workers' safety and comfort.



Vano Design "A" supplying fresh air in Reactor Room of Synthetic Rubber Plant.

Vano Design "A" Ventilator supplying fresh air to men working in wing compartments, fuselages, etc.

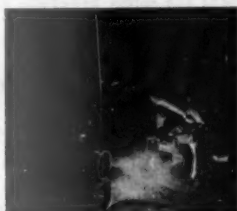


Powered by a 1/2 hp motor, and equipped with the exclusive Coppus axial-flow propeller-type fan, this general-purpose blower delivers 1500 CFM of fresh air. It supplies ventilation for tanks, tank cars, drums, vats, underground cable manholes, pipe galleries, airplane wing compartments and fuselages, and other confined places. Weighs only 103 lbs. Uses 8"-diameter flexible canvas tubing ("Ventube").

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COMPANY.....
ADDRESS.....
CITY.....

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Let this material help you with your present eye safety program. It's part of the *total* service offered by this pioneer in industrial eyewear.

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Assembly E-2 Single-part body

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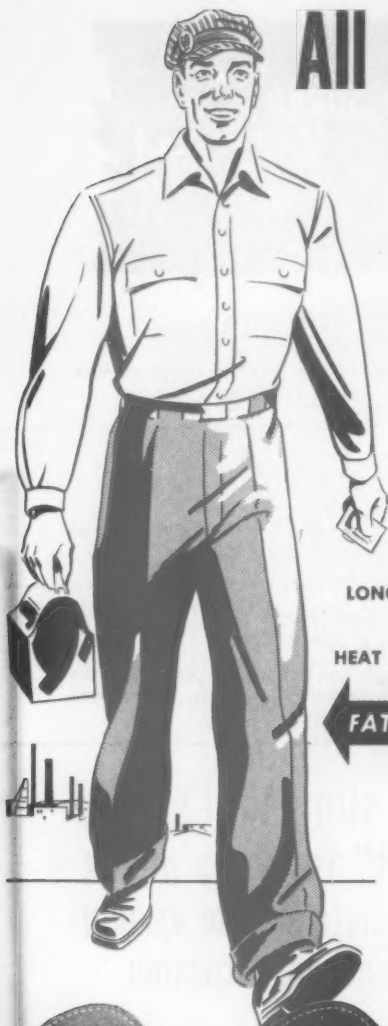
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WS-8



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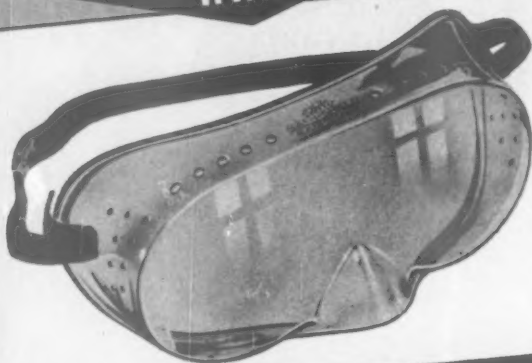
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the SAF-I-TRIPLETS



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*Often Copied
Never Excelled*

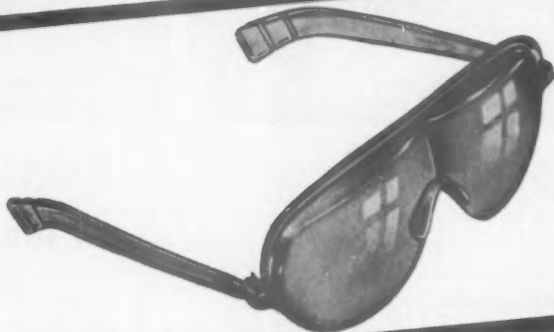


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- Made of Optilite®
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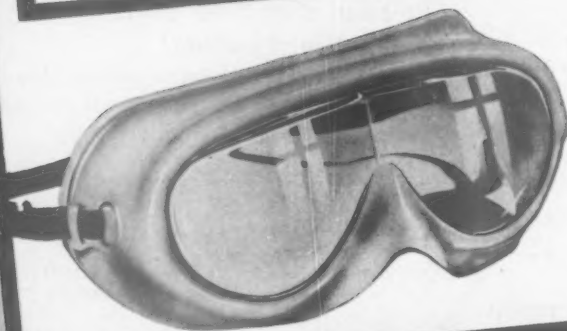
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'Mercurochrome' (H.W. & D. brand of merbromin, dibromoxymercurifluorescein-sodium) is one of the best antiseptics for first aid use. It is accepted by the Council on Pharmacy and Chemistry of the American Medical Association for this purpose.

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Resite, resist-oil
outsole, leather
midsole, resist-oil
heel.



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heel.



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Cord sole & heel.

WRITE
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oil outsole, leather
midsole, resist-oil
heel.

... Insure Workers' Feet in Sure Protection

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NATIONAL SAFETY NEWS

JANUARY, 1951

Some Restatements

I FIND it increasingly difficult to read my daily newspaper. There are many nights when I cannot bring myself to buy the paper as I enter the railroad station on my way home.

It is easy, in a grim and bitter world situation, to think that our concern with safety is futile — because the desperate dangers the world faces seem to make everything else trivial.

It takes a strong effort of mind and will to restate to oneself the certain truth that the work of accident prevention becomes more, not less important as the political and military news worsens.

Let me try to restate this truth, for my own benefit and yours, and, I honestly believe, for the benefit of the young men who face dangers against which we cannot protect them.

First, all that we have told industrial management and community organizations about the economic advantages of effective safety work is true. And being true today as it was yesterday, it means that our fight against accidents is a method of strengthening our material defense effort. We have said that the measures designed to reduce the accident rate also increase efficiency. We have said that they conserve the labor force — a matter of urgency in a time of short labor supply. We have said that these measures improve employee morale and industrial and public relations — all of which mean increased productivity.

These things are true. We would be failing in our duty if we forgot them, or forgot to say them.

Second, safety is an essential part of the operation of our whole military establishment. Our Army,

Navy, Air Force and Marine Corps will gain or lose substantially in man power and efficiency, depending on the effectiveness of their safety programs. They will need all our experience-bought knowledge and skill. They will need the talents of many of us. Any underestimation of the importance of this truth would be betrayal of our fighting forces.

Third, this crisis is not a struggle between nations — it is a struggle between ways of thinking. On the one hand there are those who view Man as a tool of the State and the Cause. The welfare of the individual is held to have no value. Anyone is expendable, not only in a major crisis, but even in the most ordinary operations.

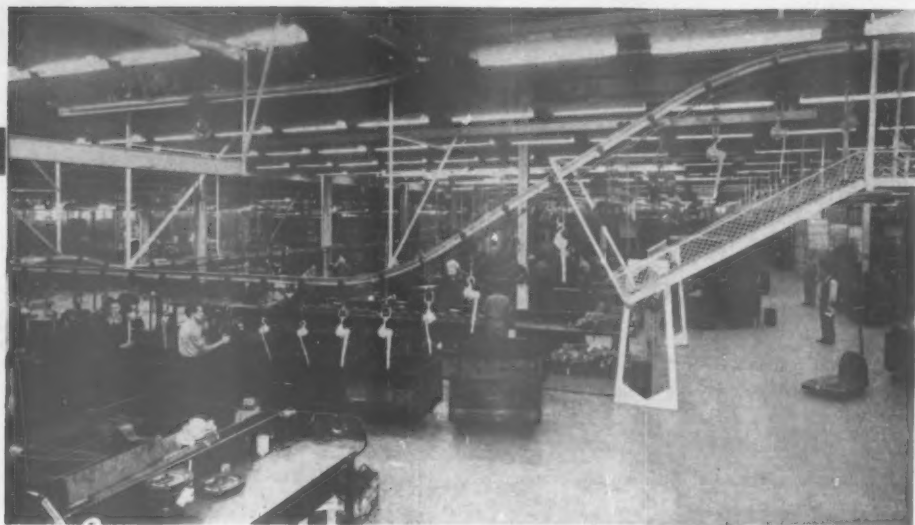
Against that view, we hold stubbornly to the idea that the individual man is the important thing, the State secondary. In crisis we may demand sacrifice — true. But only that the greater number of individuals may live, and be free.

Make no mistake about it. This struggle will be decided in the hearts of men as well as on battlefields. If we would win the support of men of goodwill in all nations, we must show that the way of life we covet is no empty set of platitudes, but a living, active, vigorous thing.

Obviously, America must demonstrate this in many ways. One way — and a way with which you and I are directly concerned — is to prove in action that safety work has a vital contribution to make in every phase of the solution of the problem before us.

May the good God give us strength to make our contribution well!

Ned H. Dearborn



Overhead monorail conveyor rising at right prevents overloading elevators for upstairs departments.

OUR AGING PLANTS

By LEO J. PANTAS

THE re-appearance of priorities, allocations, shortages of materials and manpower, panic buying, and other items in our inventory of revived horrors dramatizes the abyss between what we have and what we need. American industry is faced again with the compound problem of serving both the prodigious requirements of the country's military organization and the seemingly insatiable demand for consumer goods.

During the last few years, for-

Some 75 per cent of our industrial buildings are over 25 years old—obsolete in many details. But these plants must produce much of the goods for military and civilian use. Mechanized materials handling can overcome many hazards and bottlenecks.

LEO J. PANTAS is Works Manager, Salem, Va., Division, Yale & Towne Manufacturing Company. This article has been adapted from a paper presented at the Fifth Annual Meeting of the Society of Industrial Packaging and Materials Handling Engineers, Philadelphia, October 10, 1950. This paper was part of the Packaging and Materials Handling Short Course conducted jointly by the Society and the Community College and Technical Institute of Temple University.

tunately, we have had a respite of comparative peace during which we were able to replace some equipment and accomplish considerable new plant construction. But this, postponed during World War II, has now been interrupted by the new mobilization of our country.

Mandatory and voluntary restrictions on materials, together with the panic in the market place, seem to be proof that industry is

even now hard-put to meet increased civilian demands and the swollen needs of the military. If the "hot-again, cold-again" war has in reality taxed industry's facilities to the full, there remains but one answer: We must either increase productivity or lower our standard of living. In fact, the chairman of the President's Committee of Economic Advisors recently reviewed the first alternative—increased productivity—as



Left: In determining safe operation in floors over crowded areas, allowance must be made for both excess fatigue loading as well as presence of more than one truck in aisle.



Right: Moving industrial trucks impose a load on the floor which is about 110 per cent more than the total static weight of a truck and its load.

the only means by which the nation could carry both the civilian and military burden.

One might say that the obvious course to follow to attain expanded output would be to build new, streamlined plants with ingenious mechanized assembly lines. Unfortunately, not only is there little time, but there's also a growing shortage of building materials and other scarcities which, together with the present shortage of investment capital, preclude immediate construction of many new plants. Of the open choices, one practical solution, then, is to work with existing plant facilities so as to bring them up to their production peak.

Modern mechanized materials handling methods are a prime tool by which to harvest the fullest capacities of existing plants, old or new.

By recurring demonstrations, it has been shown time and again that handling of all sorts is the weakest link in the production process. On the other hand, it has been shown, with equal force, that in the sphere of handling industry can make almost incredible progress in reducing costs and in vitalizing over-all production efficiency.

The recently completed Census of Manufacturers discloses that 72 per cent of all industrial buildings in the United States are over 25

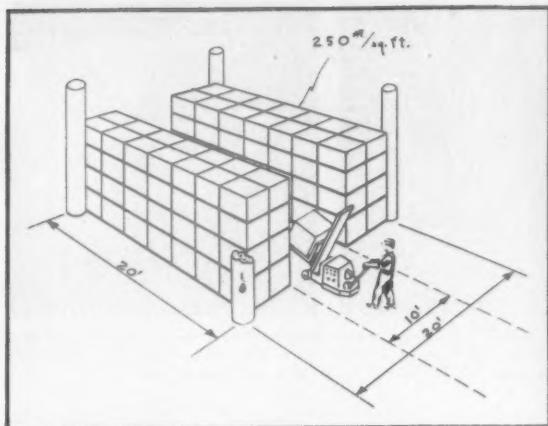
years old. Of these, half are from 35 to 45 years old, another quarter are over 45 years old. Old plants and buildings are more likely than not to pose complications, which, at first glance, seem to exclude manufacturing. While they may require a different approach from a new plant, ideally systemized with modern mechanized handling, I believe a combination of engineering ingenuity and imagination, abetted by some modern mechanized materials handling equipment and techniques, can often make a more efficient operating unit of even the oldest plant.



This work area was previously an open storage area between buildings. By roofing it over, the company obtained increased efficiency in materials handling as well as additional warehouse space.

Some old-plant problems include peculiarities and shortcomings in floor strength, low ceiling heights, poor placement of supporting pillars, inadequate aisles and storage bays, and similar disadvantages. But it is not the chronological age of a plant which truly signifies its age, but rather the extent to which these and other disadvantages exist. From a materials handling point of view, and therefore from a production point of view, even a newly-built plant is really an "old plant" if it has these characteristic disadvantages. In a sense, then, it can be said that a plant has both a chronological age and a technological age, and that all newly-built plants are not necessarily technologically modern.

One of the crucial points in all materials handling operations is how incoming shipments from highway trucks or freight cars are treated. Obviously, it's an advantage to have interior docking facilities at just the right height for loading, but that's not usually found in old buildings. Ramps are one solution where there is a disparity in truck bed height and floor level. If the distance between the highway or rail carrier and the dock is small, simple bridge plates can be used. More expensive, but usually more satisfactory, are hydraulic ramps which can be adjusted to carrier height.



Left: Diagram of floor-loading problem. Ten foot aisle, 20 feet long has capacity of 250 lbs. per sq. ft., or 50,000 lbs. Divided by 3, the safety factor, gives permissible weight of 16,000 for loaded trucks.



Right: For different levels between floor and truck bed, bridge plates can be used for short distances. Hydraulic plates are more satisfactory but cost more.

Use of ramps, both inside and outside the plant, however, causes other problems. Since the tractive effort required of lift trucks grows by leaps and bounds with increasing ramp-angles, there is a definite practical grade limitation—usually 10 per cent.

Where the angle for loading or unloading is initially too great for a ramp, the solution may be excavating, or filling in the receiving bays to bring truck beds nearly even with dock levels. In leased buildings where a minimum of capital construction is desired, the answer may very well be portable conveyors for loading.

Some old plants are faced with the problem of loading facilities designed for trucks formerly equipped with side doors. This problem is further complicated because there is often no room for the truck to back up to the loading platform in the usual manner. This has been solved by one company by installing a hydraulic bridge piece that scoots out from under the door of the building at right angles to the tailgate of the truck to make a very satisfactory platform. In addition, when there is no such vehicle to be loaded, the bridge piece is retracted so that

the alleyway is clear for through vehicles.

Another common problem in old plants is lack of headroom and clearance for today's enlarged highway trucks and railroad cars. In addition to receiving doors being too small, many times the receiving area inside the plant is restricted in size because of process operations.

One company solved both of these problems by breaking an opening through the outer wall of the building, about ten feet above ground level, to accommodate a gravity wheel conveyor. Now, incoming shipments are taken from the truck or freight car, placed on the conveyor, and shipped to storage or process areas throughout the plant without any additional loading dock or accessories.

Structural Limitations

Once the goods being received are inside, more problems arise in old plants. From a materials handling standpoint, a one-story structure is preferable to a multi-story structure, except for certain process industries. One-story buildings afford more usable space per dollar of investment than any other, partly because of

the space requirements of elevators. Furthermore, in a one-story building, relatively new types of roof construction with longer spans, arched and curved welded trusses, designed to support only the roof plus possible snow loads, offer economies in construction costs.

The Problem of Elevators

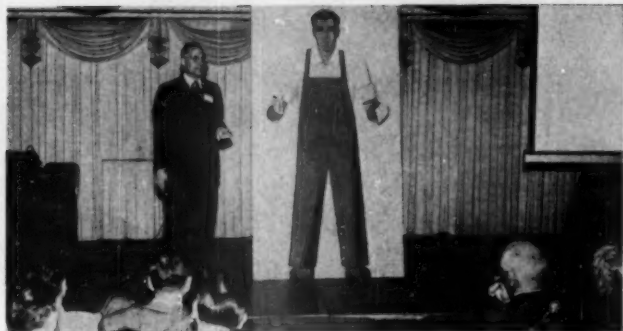
In multi-story buildings, elevators may also prove to be a bottleneck in the flow of materials. This can be partially avoided by taking into full consideration the volume of material flow and then planning installation of as many elevators with sufficient capacity and door openings as needed to admit and accommodate the loaded trucks.

Automatic systems of signalling and control reduce truck delays at elevators. The time required for an elevator to respond to a call can be cut by installing the signal switches far enough in front of the trucking lines to enable truck operators to call in advance and by locating the elevator home station at a midpoint in the shaft.

Other ways to prevent elevator delays are to put loads on live

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L. H. B. Peer, of General Electric's Knolls Atomic Power Laboratory demonstrates electric shock with a wired dummy at Low Voltage Hazards session at 38th National Safety Congress.



PRESENTATION WITH A

Punch!

By **FREDERIC T. CLARKE**

When the Electrical Equipment Section asked General Electric to put on a demonstration of the hazards of electricity that carried a real punch, we thought it would be easy. Sure, we were used to handling high voltages. We go as high as 15,000,000 in our Pittsfield Laboratory, and several plants have 1,000,000 volt setups.

Then the blow came. We were supposed to make this presentation with a punch about the haz-

ards of low voltage 110-220, the stuff that comes into your houses and does odd jobs, such as cleaning, refrigerating, cooking, etc.

After several conferences, it was decided to show by means of instruments, just how Ohm's Law operates in connection with a common ordinary 110-volt electric shock. It was decided to use a dummy wired with the proper resistances with the current flowing through him to a set of instruments whose faces were to be projected on a screen.

By changing resistance of the dummy, we could simulate wet hands or dry hands. By changing the voltage applied to the dummy we could show the different currents which might be included on

110-volt house current or 60-volt welding circuit.

Slides were used to demonstrate the control of low voltage hazards. Since 110 volts is best known to the general public we decided to put a human interest slant to as many of our slides as we could. People are mostly interested in people; therefore, we had children watching a watt-hour meter, a workman pulling a switch, a foreman instructing an electrician.

Our opening slide was designed with two thoughts in mind, first to act as a sort of seventh inning stretch, a mental relaxation, and second to illustrate one of the worst electrical hazards in the home. So our girl in the bathtub was used. Later on she appeared in a much more demure manner.

THE AUTHOR: *Frederic T. Clarke, is Supervisor of Safety, Apparatus Department, General Electric Company, Schenectady, N. Y.*





Left: General offices of the Tennessee Copper Company at Copperhill. Right: Several trains enter the basin daily on the Etowah to Copperhill turn-around of the Louisville & Nashville to deliver supplies and pick up shipments of company products

Tennessee Copper Company's Four-Point Program

By SAMUEL E. SHARP

Maintaining the safety record is a challenge to the ingenuity of departmental management and the safety committee organization

DOWN IN the extreme southeastern corner of Tennessee, in what is known to the mining world as the Ducktown Basin, are located the mines and plants of the Tennessee Copper Company. Here the company mines and mills a complex sulfide ore containing economic values of copper, iron, sulfur and zinc.

Copper and iron concentrates are reduced for producing blister copper, iron sinter, sulfur dioxide gas and slag for the market or manufacturing purposes. Copper, iron sinter, zinc concentrates, sulfuric acid, liquid sulfur dioxide, copper sulfate, and several fungicides are marketed.

Company operations are carried out by some twelve operating and general service departments. Current employment is slightly over 2,000, with some 26 per cent of the total in the Mining Department.

Departmental management is re-

THE AUTHOR: Samuel E. Sharp is Safety Director, Tennessee Copper Company, Copperhill, Tenn.

sponsible to general management for production of maximum quality and quantity at a minimum cost unit, much the same as though the department were an independent business. Accident prevention is looked upon as the elimination of interferences with production, and management has tried to design and organize a balanced program which will satisfy the fundamental requirements for efficient operation.

This, in brief, is the background for a safety program which has won recognition from the National Safety Council, the U. S. Bureau of Mines, and the State Department of Health. According to the Council's records, three of the company's mines, as well as the whole mining department, have exceeded the best previous records for underground copper mines in man-hours of exposure without a disabling injury. Boyd mine now has the best record yet reported for any underground mine.

Last February the company received the National Safety Council's award of Honor for Distin-

guished Service to Safety for establishing accident rates considerably below average rates for comparable industry. This was the third such award to be granted to a metal mining company.

While certain basic characteristics of the general safety program are followed throughout the organization, it is management's desire that departmental details be handled in a manner suited to its problems, facilities, and personnel. Basic objectives are:

1. To challenge departmental management's ingenuity in making basic improvements in facilities, processes or methods.
2. Encourage improvements in the supervisory approach and technique.
3. Develop a cooperative attitude in each employee.
4. Maintain interest in quality workmanship at all levels of employment.

The means of obtaining these objectives are not new. But they enjoy management's sincere support and details of operation are changed to meet changing conditions. They are:



Thomas S. Grizzle, training foreman, and a group of trainees doing classroom work on the safe use of explosives.

1. Safety committees.
2. Group meeting and awards.
3. Employee training.
4. A safety engineering department.

The four general types of safety committees designed to reach all levels of personnel are:

1. Central, or Works, Safety Committee.
2. Labor-Management Safety Committee.
3. Departmental Safety Committee.
4. Workmen's Safety Committees.

Central Safety Committee. This committee includes all department

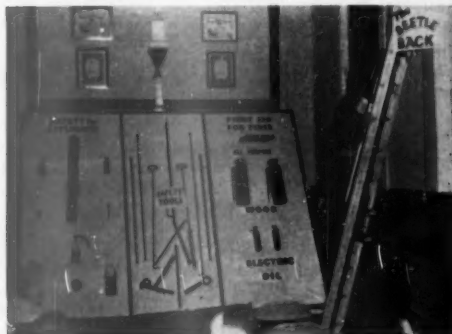
heads. The production manager is chairman and the safety director is secretary. The committee meets monthly for discussion of the broader aspects of safety in its relation to company policy and operating technique. It is the chairman's attitude that the departments have the personnel and know-how to handle a safety problem after it has once been identified and the purpose of discussing it is to arouse an interest in it and en-

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Group of trainees at intermediate safety switch, between grizzly and blasting switch, practicing what was learned in the classroom.



Decorations of the Burra-Burra Club for the Mine Department's semi-annual safety rally, featuring special recognition by National Safety Council and U. S. Bureau of Mines.



General Manager T. A. Mitchell presents certificate of honorable mention to H. W. Whitlow, Callaway-Mary Mines foreman, in competition for "Sentinels of Safety" trophy.



How Much Is Industry Doing To Prevent

OFF-THE-JOB ACCIDENTS?

**Survey of 400 Industrial Firms Shows
Few Acting Against Off-the-Job Accidents**

By THOMAS J. BERK

HOW MUCH — or how little — is industry doing to prevent off-the-job accidents?

Several years ago I made a study of this endeavor by industry, including in my survey about 400 representative industrial organizations in the United States and Canada. I asked them specifically what they were doing about off-the-job safety.

Of those 400 companies only 43 claimed they were doing anything. Among them I could count on the fingers of my two hands organizations who were really doing something to alert their employees to the dangers of accidents while away from work. And yet all of these 400 companies had someone who was responsible for accident prevention activities among employees.

This information is not given to encourage a feeling of complacency because you have plenty of company in neglecting these types of accidents. Rather it is offered as an indication that something should be done, and will have to be done, if the safety engineer is to hold his place in these United States.

New York has become the fourth State to give official recognition to the problem of "off-the-job" accidents through legislation on employee disability occurring off the job. It is my understanding that the State of Washington also has such a law pending.

In the State of New York alone, there are 14 million people who are watching and waiting to see what the 900 members of the American Society of Safety Engineers are going to do about pro-

viding adequate safety education for our six million workers when they are not in the plant.

There are also others, not properly trained or equipped, who would welcome an opportunity to step into the field of accident prevention, particularly if the job is not being adequately performed by us. They are watching for a chance to point out where the safety engineer has been lax in his accepted duties of preventing accidents wherever they occur.

Don't Confine to Plant

We cannot afford to confine our safety activities to our plant. We must become more active in community projects that are designed to reduce accidents. There has always been, and always will be a place for an accident-prevention specialist on community welfare committees.

Any laws that affect accident prevention and the work of the safety engineer are all a part of the off-the-job safety program. Accordingly, we must as individuals, as members of the American Society of Safety Engineers, as well as citizens of our own home town keep informed regarding any legislation that might affect us, those whom we love, and our jobs as safety engineers.

THE AUTHOR: *Thomas J. Berk is Assistant Director of Safety, Metropolitan Life Insurance Company, New York. This article has been condensed from a talk before the Central New York Chapter, American Society of Safety Engineers.*

While it has been proved before that production is affected by the possibility of an accident, that area of possibility has been restricted to our place of business. Now those encompassing circles caused by the rock thrown into the millpond have extended beyond our plant into the street, into the home, and even out of the home. They continue to follow our employees throughout 24 hours of the day. We can no longer concern ourselves only with occupational injuries; we must prevent all accidents, wherever they may occur.

In addition, we may have to conduct a program of health education that goes far beyond the scope of duties previously demanded or expected of a safety engineer. Those who are affiliated with an organization having facilities for a health education plan are indeed fortunate.

Let's Not Fool Ourselves

The job before us in controlling accidents in and out of the plant is a stupendous one. Let's not fool ourselves; the challenge has been flung at us by Article 9 of the New York State Workmen's Compensation Law, better known as the Disability Benefits Law. Because our job of preventing accidents is so great, I shall be unable to discuss the other phase of this law — that of lost time from work because of illness. In the past, an epidemic or catastrophe has not necessarily affected the industrialist's insurance premium, even if some of his employees were involved. But, now such occur-

rences will, particularly if any of his employees are implicated.

Up to now we have had to consider safety only as an established by-product of industrial procedures. From now on it will be an all day and night interest, and we will have to walk outside our plants into the streets, into the homes, into the play areas, and instill safety in the minds of everyone; not only in the minds of present employees, but of potential employees as well. And when we say potential employees, we must not overlook the students in our schools.

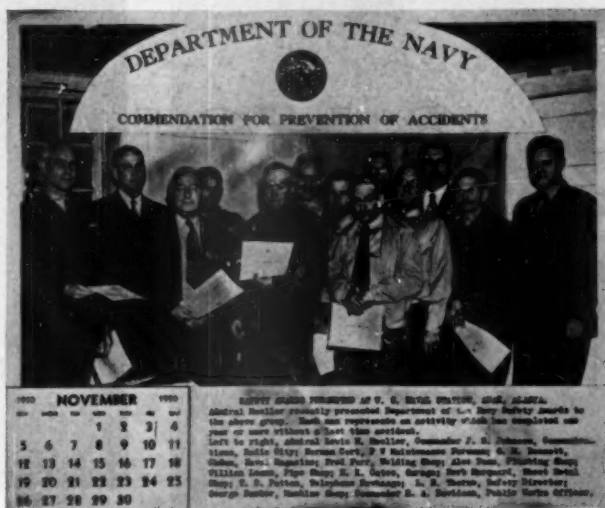
Schools Doing More

True, our schools are doing a great deal more in accident prevention education than they ever did, but we still hear the cry that there is not enough room in the curriculum. Let's make no mistake, our economic well-being in the years to come is dependent on the school child. Safety and health must be accepted as part of our daily life.

Too many safety men have been complacent about off-the-job injuries incurred by employees under their surveillance. Some have been promising to do something about this problem. We have no choice now; it has become essential to include in our industrial safety program activities that will effect the elimination of off-the-job accidents. Management has had its attention drawn to the seriousness of the situation by the enactment of Chapter 600 of the Laws of 1949, better known as the New York State Disability Benefits Law. Management will demand action on our part in the prevention of off-the-job accidents and rightfully will require you to show results.

The New York State Disability Benefits Law offers the best opportunity the safety engineer has ever had to demonstrate that he can successfully perform the functions of providing protection from off-the-job injuries. Those safety

Calendars plus Safety Messages



Calendars are scarce in Alaska, so the U. S. Naval Air Facility at Adak combines a monthly calendar pad with a message of safety to the personnel at the base. Above is a reproduction of one of the monthly calendars featuring the awards of the Department of the Navy.

Of the 19 shops at the station 12 have completed a year without a disabling injury. Much of the work is carried on under difficult make-shift conditions which many industries would find hard to visualize, according to L. E. Thorne, safety engineer.

engineers who have a well-established program are in an enviable position because experience has shown that the fundamentals necessary for eliminating all types of accidents are the same.

Many plant organizations are prepared to offer educational materials on accident prevention in the home, on the streets and highways, and in recreation areas. You will need to have facts concerning the causes of accidents to your employees. Such data can be collected through reports from employees concerning their disability. It will be required by the new law. But the efficient accident-prevention specialist will want to put into effect a program of prevention before an accident occurs.

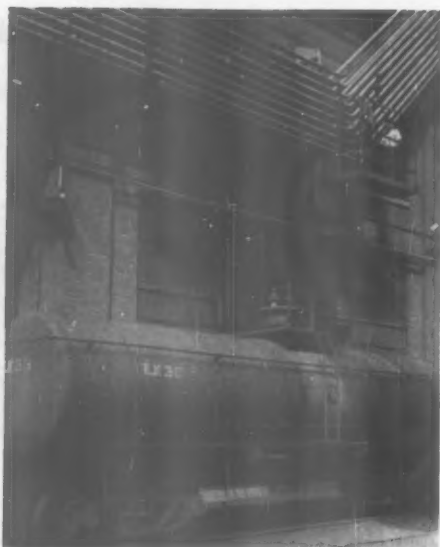
The situation faced by all safety engineers who are required to

prevent off-the-job accidents is similar to the one that exists in the prevention of industrial accidents. They know that the more serious accidents will be publicized and that definite action will be demanded. The greatest problem, as you well realize, will be with those accidents where lost time is of short duration.

We have been doing something to reduce the thousands of lives lost in industry, now let us do something to reduce the *twice as many* fatalities occurring to our workers off the job. Up to the present, the New York State employer has not been in any way financially liable for accidents to employees away from work. Now he is.

During the past year, 30,500

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Scaffold suspended from crane boom can reach many places where erection of other types of scaffolds would be difficult or unsafe. Left: special type of scaffold used for installing or painting vertical pipe lines. (See also cover illustration).

Reaching the High Spots

Scaffold suspended from crane proves useful for many construction and maintenance jobs in difficult locations

FOR LOCATIONS where scaffolds erected from the ground or two-point suspended swing scaffolds would be unsatisfactory, the crane scaffold shown in the accompanying illustrations and on the front cover offers possibilities.

This type of scaffold has been used for several years by Eastman Kodak Company, Rochester, N. Y. Experience has been satisfactory from the operating standpoint and it offers some safety advantages over the conventional types of scaffolds.

This type of scaffold has been used frequently in locations such as over buildings partly demolished where the erection of any type of frame-supported scaffold would be difficult and dangerous.

In cold or stormy weather three sides of the scaffold may be enclosed to give weather protection. Men working from such a scaffold do not have to climb long ladders or out over piping.

A convenient use of this device is in the demolition of concrete building by the cannon ball method. Men can be swung out over the broken-up concrete to burn off exposed reinforcing rods, permitting removal of the material in reasonably small loads. In this case it would be particularly dangerous for men to climb out over the weakened and broken concrete with a tangle of projecting reinforcing rods.

The scaffold might be criticized in having only a single means of

support and not being adaptable to the use of individual life lines, which, incidentally, are always used by the company for work on two-point swing-suspended scaffolds. It is felt, however, that the factor of safety is adequate as the scaffolds are used on cranes of from 15 to 25 tons' capacity. The scaffold is provided with toeboards and 42-inch railings as shown in the illustrations. It is suspended with $\frac{5}{8}$ -inch steel cable. Tag lines keep the scaffold from swinging or twirling when it is being raised or lowered.

The crane operator could, it is true, give the workmen on the platform a severe jolt by dropping the scaffold suddenly or by driving over rough paving. Good supervision is essential in such work.

In company practice, the crane is seldom moved with scaffold attached, and then only for a few

feet at a time. Generally speaking, operations at Kodak Park are in crowded areas where the boom has to be slipped in between pipe lines and other overhead structures, in many cases moving only an inch or two at a time. Rough riding of the type which might cause a crane boom to flip over backward would be a remote hazard around the plant.

The newest cranes are arranged to reverse the lift so that lowering of the scaffold is accomplished at a definitely governed speed in reverse instead of depending on a drum brake.

Crane operators are carefully selected and trained and adequately paid, and are under careful supervision.

One important seasonal use of the crane, with distinct safety advantages, is in the removal of icicles from high structures. Under such conditions it would be dangerous and time-consuming to erect a pole scaffold from the ground and also dangerous to climb out on an icy structure to attach any form of swing scaffold.

A suggested rule to follow in the operation of this type of crane would be to keep men from riding in the scaffold enclosure for any distance, say over 20 to 25 feet, with the boom at not over 60 degrees with horizontal.



Scaffold suspended from crane by steel cable. It is equipped with standard hand rails and toeboards and can be protected on three sides against the weather.

The SAFETY VALVE

In the Rear-Vison Mirror

LOOKING back, Thanksgiving week seems like a nightmare of concentrated disaster, bad enough even to steal headlines from the grim news of war.

Following close on the wreck of a troop train in the Canadian Rockies was the Thanksgiving eve collision of commuter trains on the Long Island with a toll of 77 dead and several hundred injured.

After 33 years I can remember quite clearly the effects of high explosive shells on personnel and materiel, as the gunner's manual nonchalantly referred to life and property. But even allowing for fading memory, I can't recall anything as horrible as the news pictures of that wreck. Other veterans have felt the same way about peacetime holocausts.

Of course, tragedy always seems much worse when it crashes in abruptly on normal, happy living than in combat when people are braced for it.

Thanksgiving week came at the peak of the hunting season, and firearms of smaller bore than those used in Korea were claiming victims. Going through Wisconsin on the way to Duluth we met car after car loaded with deer, and the woods and highways were full of hunters in red shirts with hunting license numbers sewed on the backs.

Years of safety work have got me thinking of almost everything in terms of accidents. I couldn't help wondering how many casualties each ton of venison had cost.

The score for Wisconsin, the radio reported, was 16 dead and an indefinite number of non-fatal cases. Guns accounted for only half the deaths. The call of the wild proved too much for some elderly hearts.

Across the ocean, Mt. Etna on one of her periodic rampages was

bringing fiery destruction to Sicilian villages.

At home the weather was public enemy No. 1. It isn't comforting to read about blizzards when there is 500 miles of highway between you and home. And when the snow swirls across the windshield, the radio bulletins don't add to your peace of mind.

Near Madison it looked as though we might have to stop for the night but we rode out the storm. Home never looked more welcome.

With the storm, as in hunting, heart attacks swelled the toll. A workout with a snow shovel in heavy drifts can be almost as dangerous as lugging a heavy carcass through the woods.

Useful Screwballs

How many potential geniuses have been screened out of employment by personality tests?

Of course, we would rather work with normal, placid persons than with tense, high strung individuals. But even people classed as screwballs have made some valuable contributions to their organizations.

"If you do a good enough screening job you may get people who are perfectly normal. But you will have screened out people who discover things like nylon."

That quote is from *Business Week* via *The Pick-Up*, which Bert Barnes edits for United Parcel Service. The author is Dr. Dershner who apparently has something to do with Du Pont employment policies.

With a manpower shortage in sight, industry may come around to a less arbitrary attitude toward personality tests.

Carman Fisk

Removal of Ice and Snow In Industry

Published by National Safety Council
425 North Michigan Avenue, Chicago 11

1. Snow and ice around an industrial plant can cause property damage and accidents to the public and to the plant employees, who may slip and fall on walk-ways, loading platforms, steps, and other structures, or be struck by icicles or sliding snow. (See Figure 1.)

2. Snow has widely varying characteristics. It may be light and fluffy, weighing possibly 200 pounds per cubic yard, or it may be wet and weigh as much as 1200 pounds per cubic yard. In the form of ice, it takes on added weight.

3. Heavy snow and ice may cause roofs to collapse or may suddenly slide from a sloping roof, dropping on people below. Snow and water collecting in gutters, downspouts, or on overhanging structures may, by overflowing and freezing, form long, heavy icicles which will fall. (See Figure 2.)

4. Water pipes may freeze and burst, causing material to leak and flood in warmer weather, then refreeze into heavy ice formations



Figure 1. Accumulations of ice and snow on stairways cause many falls.

This Data Sheet is one of a series published by National Safety Council. It is a compilation of experience from many sources. It should not be assumed that it includes every acceptable procedure in its field. It must not be confused with American Standard Safety codes; federal laws; insurance requirements; state laws, rules and regulations, and municipal ordinances. Reprints of this Data Sheet will be available from National Safety Council in one month.

covering other operating equipment and controls. As a result, there may be a complete work stoppage from a lack of flowing materials necessary for plant operation. Ice formations may also interfere with sprinkler and fire protection systems.

Methods of Removal

5. During the winter months, weather bureau reports should be frequently checked. They will indicate the temperature and the amounts of snow to be expected.

6. One of several methods may be used to remove snow and ice:

- a. Manual removal
- b. Chemical agents
- c. Hot water and steam
- d. Heating elements: buried pipes or electrical units

7. The area to be cleared and the amount of snow and ice to be removed will determine which method should be selected.

Manual Removal

8. Hand shoveling of heavy formations sometimes produces back strains, hernias, or overexertion resulting in heart failure. Fol-

lowing heavy snows, men not used to such labor should not be pressed into service. Lightweight shovels, medium size for general use and made of aluminum with a steel cutting edge, have been found satisfactory.

9. Overreaching or a sudden slide of snow or ice may cause the employee who is doing the removal to fall. To prevent such falls, it is recommended that a life line and belt be used with one end fastened securely to a permanent structure.



Figure 2. Heavy icicles constitute a hazard to both workers and the public.



Figure 3. Installation of heating pipes before the concrete is poured. (Courtesy Commonwealth Edison Company).

10. Power-driven scoops, bulldozers, or snowplows can be used to overcome the hazards of manual removal and can be operated by a few men.

11. Industrial plants have ramps, overpasses, or walkways leading to the top of tanks, ovens, condensers, and similar equipment, and between buildings. Shoveling snow or breaking ice from these locations increases the hazards to people below from falling and suddenly sliding loads. The area below should be roped off or otherwise guarded to protect motor vehicle and pedestrian traffic.

Chemical Agents

12. Hard-packed snow or ice can either be skid-proofed with abrasives or softened up with salt or calcium chloride.

13. Use of calcium chloride is preferable because it melts ice and anchors abrasives much faster than ordinary salt and is effective in temperatures at which salt will not melt ice at all. It does not recrystallize, but remains in solution.

14. Abrasives treated with calcium or sodium chloride (salt) or these chlorides used alone should be applied as sparingly as possible

to concrete surfaces. The reason is that repeated freezing and thawing of concrete in contact with these salts may cause surface pitting or scaling. It is recommended that meltings or solutions be swept or flushed with hot water as soon as possible to prevent such damage.

15. Manufacturers should be consulted for information on the inhibitors to be used to prevent corrosion on steel structures.

Hot Water and Steam

16. Hot water sprays or steam may be used to remove snow and ice.* If this method is used, the snow and ice must be completely drained off and the area swept or the surface squeegeed to prevent re-freezing. In extreme cold weather, treated abrasive should be applied immediately afterwards.

* See National Safety Council Data Sheet D-Gen. 33, *Cleaning with Hot Water and Steam*.



Figure 6. Flexible lead-covered heating cable plugged into an ordinary receptacle.



Figure 4. Network of pipes imbedded in concrete contains water and 40 per cent solution of anti-freeze compound. Both are heated by a heat exchanger in building. (Courtesy Commonwealth Edison Company).

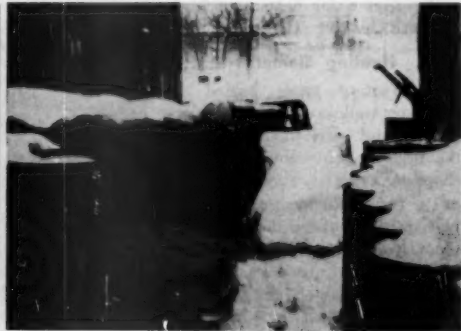


Figure 5. Loading dock with buried heating element of copper tubing in which warm oil is circulated. Note the contrast between the heated and unheated sections of the platform. (Courtesy American Cyanamid Company).



Figure 7. Flexible heating cable on a roof structure to provide drainage channels.

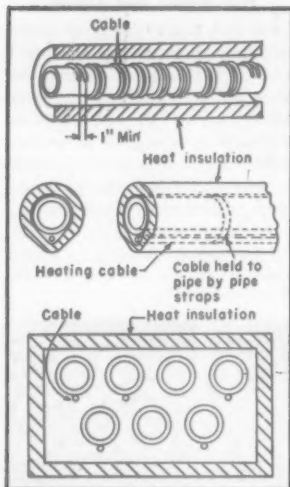


Figure 9. Pipe line with heating element covered with insulation to retain heat.

17. Hot water may be supplied from various sources, such as boiler feed water heaters or high pressure cleaning jets.

Heating Elements

18. Heating pipes buried in concrete walkways, loading platforms, and driveways eliminate the need for shoveling snow and chopping away ice. (See Figure 3.)

19. In certain locations hot water can be circulated through these pipes from natural warm springs, from industrial processes, or from gas-fired, radiant heating systems of suitable capacity which are commercially available. (See Figure 4.) Anti-freeze, such as high boiling point ethylene glycol base solutions, can be added to the wa-

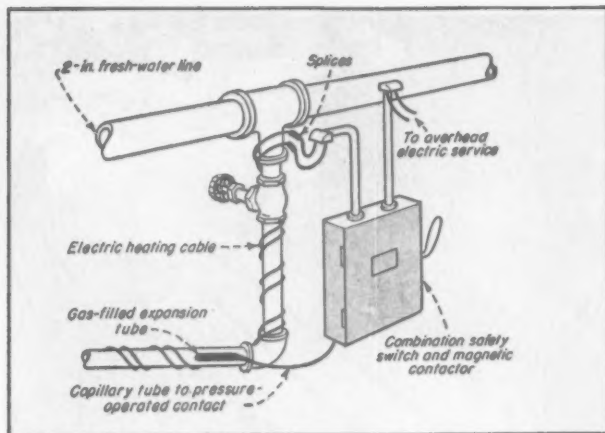


Figure 8. Flexible cable wrapped around piping.

ter. Then there will be no danger that the system will freeze when not in operation.

20. Steam can be circulated or exhaust steam used from industrial operations such as steam kettles, vats, and so on. The piping system should be designed for proper length and size of pipe and for proper pitch to remove condensation that may collect and freeze and block further heating.

21. One plant uses warm waste oil circulated through copper tubing from machinery by means of a small pump. (See Figure 5.)

22. Tubular electric heating elements can be placed permanently in wet concrete walkways before the finished layer is applied. These units can be controlled with manually operated switches or automatically with thermostats.

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ICICLES Removal

1. If heavy icicles in a hazardous location cannot be reached, rope off or otherwise barricade the space beneath them until they have melted.
2. When using a ladder, place it properly. Use spiked ladder shoes, or secure the ladder with rope if the footing is slippery.
3. Use a pole with an offset or hook on the end so you will be out from under the icicles. Do not overreach.
4. If you must climb a sloping roof or work from a window, wear a safety belt and life line.
5. Rope off the area, barricade it, or have someone guard it.

Work from the ground or other level footing whenever possible.



SAFETY INSTRUCTION CARD No. 121
National Safety Council PRINTED IN U.S.A.

ICE AND SNOW Control by Chemicals and Abrasives

1. Remove snow or slush before it forms into ice.
2. If ice forms, spread sand, gravel, or fine cinders over the slippery surface.
3. To increase effectiveness of the abrasive material, mix calcium chloride or sodium chloride (salt) with it.

Calcium chloride and abrasives

Mix 100 pounds of flake calcium chloride with one cubic yard of abrasive, or stir 100 pounds of flake calcium chloride into 13 gallons of water and pour the solution uniformly over one cubic yard of abrasive.

Sodium chloride and abrasives

Mix 100 pounds of salt (especially rock salt) with one cubic yard of abrasive in storage piles. For small quantities of abrasives, dissolve salt in water at the rate of 2½ pounds per gallon, and pour over the abrasives immediately before use.

Salt

Apply salt directly to the icy surfaces, 1½ to ¾ pound per square yard.



SAFETY INSTRUCTION CARD No. 107
National Safety Council PRINTED IN U.S.A.

Figure 10. Safety Instruction Cards can be distributed to employees as reminders.

Williams Named NSC Consultant

SIDNEY J. WILLIAMS, assistant to the president of the National Safety Council, reached normal retirement age December 31, after nearly 33 years' service on the Council's staff. His relationship with the Council will continue on a part-time basis.

Mr. Williams joined the Council staff June 7, 1918, as chief engineer. In 1924 he became director of the Public Safety Division and throughout the years has continued to supervise the Council's traffic and transportation activities. For the past five years he has been assistant to the president.

"During these years no American has contributed more to accident prevention than Mr. Williams," said Ned H. Dearborn, president of the Council, in making the announcement. "His wide range of knowledge, his personal integrity and his wise counsel have been appreciated not only among his staff associates but among a multitude of individuals and organizations throughout the nation.

"Mr. Williams has reached the normal retirement age. However, I am sure that safety people all over this country will be gratified to know that he will not retire as of that date, but that the Council will retain his services on a part-time basis. While his administrative staff functions will be taken over by others, he will continue to be available for consultation and for various special assignments.

"For example, he is chairman of the National Committee on Uniform Traffic Laws and Ordinances, chairman of the Safety and Industrial Health Advisory Board of the United States Atomic Energy Commission, and consultant to the Federal Safety Council, the President's Highway and Industrial Safety Conferences, and other bodies. These are only illustrative of the important roles he will continue to play.

"The name Sidney J. Williams is synonymous with high character,

complete reliability, conscientious effort and devoted loyalty. The members of our Board of Directors, our officers, our various voluntary conferences, sections and committees, as well as the staff of the National Safety Council, will join in grateful praise for his unsurpassed contributions to the safety movement."

Mr. Williams was born in Milwaukee, May 12, 1886. In 1908 he was graduated from the University of Wisconsin with the degree of B.S. and in 1915 he received the degree of C.E. For several years he was engaged in the building construction industry and in 1913 became engineer for the Industrial Commission of Wisconsin.

As chief engineer for the Council, he figured prominently in the early history of the industrial safety movement and contributed much to its development.

When the growth of traffic fatalities throughout the country focused the nation's attention on the need for greater preventive effort, Mr. Williams was selected to organize expanded public safety activities for the Council. His experience in industrial safety and his ability in organizing helped to make the

Council a leader in the public safety field.

In 1934 when the national program of public works for the relief of unemployment was established by the Federal Government, the authorities were faced with the problem of accident hazards for millions of workers who had been employed on various projects. Mr. Williams was called to Washington and asked to organize a safety program. With the aid of safety men in all parts of the country, a program was inaugurated and the accident rates were held to a much lower figure than was anticipated.

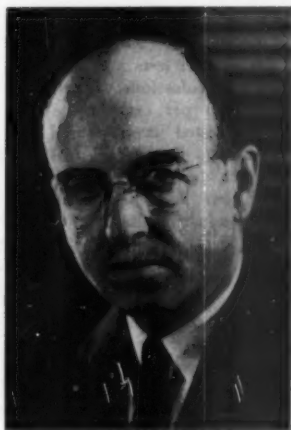
In 1946 President Truman appointed him White House consultant for the development of a safety program for Federal employees. This led to the reorganization of the Federal Safety Council, and the inauguration or stepping-up of safety programs in many of the Federal agencies which employ a total of some two million civilian workers all over the country.

Another important contribution by Mr. Williams to the Council's program has been the organizing and directing of the Member Training Courses through which representatives of many industrial concerns have come to Council headquarters for instruction in the fundamentals of safety.

To list a number of committee and conferences on which he has served would require more space than is available here. He has also delivered many addresses and lectures before various groups on many and varied phases of safety and has written numerous articles for books, encyclopedias and periodicals.

In 1938 he received the C.I.T. Safety Foundation grand award for the greatest contribution to public safety during the year.

Just recently he was named Beecroft Memorial Award lecturer for 1950 by the Society of Automotive Engineers—the fourth person to be selected since the award was inaugurated.



Sidney J. Williams

FINDING EYE DISEASE EARLY

By FRANKLIN M. FOOTE, M. D.

IT is estimated that there are 260,000 blind people in the United States today. Because of our aging population, it is further estimated that there are approximately 22,000 newly blinded men, women and children each year. It has been estimated by eye specialists that had scientific knowledge been applied at the proper time more than 50 per cent of this blindness could have been prevented. Early case-finding, therefore, will contribute a great deal toward reducing unnecessary blindness.

Such an objective is not only humanitarian, but also of economic significance. For the inadequate care and services to the blind which we are now giving, we are already spending \$50,000,000 annually in tax money. Private agencies probably spend an equal amount, so that the total cost of blindness each year would run to \$100,000,000.

Case-finding for eye conditions may be considered properly under two headings: among children and among adults. With children, because over 80 per cent of our education comes through the sense of sight, case-finding is concerned not only with detecting eye disease in its incipency, but also with discovering those with optical or other defects which may be corrected so that the child may obtain maximum profit from his educational opportunities.

To find children with various eye conditions, it is important that there be a competent general medical examination, since eye health is part of general health. The school medical adviser examines the eyes to look for any gross defects. Testing of vision may be

carried on by the school teacher, nurse, by a technician, or sometimes by the school physician.

In recent years, in order to detect the 20 to 30 per cent of children needing eye care, various batteries of tests have been devised. To determine which test is most efficient in working with school children, the National Society and the U. S. Children's Bureau are sponsoring a research study — with the cooperation of the Missouri State Division of Public Health, the St. Louis Board of Education and the Washington University Medical School.

Among adults, industry is also finding that good vision is important to increase production, reduce wastage and lower accident rates. For this reason certain tests of visual skills have been developed and are rapidly being adopted by many industries, particularly for fields of work in which special visual skills are essential.

Four Per Cent Referred

When these tests are made under good professional supervision, about four per cent of the employees tested are referred for examination by an eye physician in order to determine whether serious eye pathology is present. Thus, industrial tests of visual

THE AUTHOR: Dr. Franklin M. Foote is Executive Director, National Society for the Prevention of Blindness, New York. This article has been condensed from a paper presented before the National Health Council Symposium on Early Case Finding, March 24, 1950.

skills help in finding men and women with eye disease.

In Industrial testing, however, the ophthalmoscope is not ordinarily used, nor is tension of the eyeball ordinarily taken. Both of these procedures seem to be necessary if we are to pick up in the earliest stages such serious eye diseases as glaucoma. Therefore, a research study has been under way during the past four years by the Philadelphia Committee for Prevention of Blindness, to see what might be done to get people with eye disease under treatment.

Five Minute Tests

In surveys made by ophthalmologists connected with the Philadelphia Committee, a test for distance acuity was done, external eye examination and ophthalmoscopic examination were made, and the ocular tension was taken with a standard tonometer. All of these tests took approximately five minutes' time per employee.

Among the first 3,923 people screened, according to Carpenter, Brav and Seidel, 117 were referred for further examination. A definite diagnosis of glaucoma was made by independent ophthalmologists in 76 men and women, or nearly two per cent of the entire group. Seven additional referred persons are still under study. The most fortunate result of this research has been that nearly all the cases found were in the earliest stage of chronic glaucoma when treatment is most effective in saving sight.

In the Philadelphia survey several other eye diseases requiring treatment were picked up — such as diabetic retinitis, high blood pressure, Bright's disease, and arteriosclerosis.

It is our hope that through the screening procedures discussed here, and through others that may be developed through further research, we shall have a practical technique for finding early cases of eye disease which can be adopted by industries and by local health agencies throughout the country.

CAUSE AND CURE



These examples are from reports of actual accidents. They list the causes and the steps taken to prevent recurrence



Lift Crush

When elevator was stalled below first floor by limit switches, operator raised it with controls in penthouse; another employee climbed in and was crushed between elevator and top of door frame.

Correction: Gauge marks were placed on cable so car could be positioned from controls in penthouse; movement of elevator with doors open was strictly forbidden.



The Hard Way

Transport crew was winching bundle of equipment onto truck without skids when it caught on truck bed; employee who loosened it caught hand in cable.

Correction: Crews were ordered to use skids when placing such loads on truck; they also were told to slacken cable before attempting to free loads that are stuck.

No Brake

When lowering portable mast with hand operated winch, operator lost control because of defective brake; arm was broken by spinning crank.



Correction: Foreman was ordered to keep winches, other equipment in safe condition; operators were ordered to get help when necessary to lower loads with winch crank.

Rubberneck

Worker walking at edge of highway stepped aside for approaching vehicle while glancing back at traffic behind and was grazed by car.



Correction: All plant employees were reinstructed in rules for pedestrians, being warned to walk on left of highway, facing oncoming traffic, and watching approaching cars.



Shifting Load

Truck helper rode on front of pile of asbestos wall boards; when driver applied brakes, load shifted, crushing helper against cab of truck.

Correction: All drivers and helpers were ordered to secure all loads to prevent shifting; drivers were ordered to make sure that helpers are riding in safe position.



Knuckle Hazard

Bearing down heavily on lever of steel cutter that had dull knives, employee suffered severe bruises when fingers collided with nearby wall.

Correction: Foremen were told to be sure that cutters were not set up where movement of lever would be restricted, and to check frequently to see that blades are sharp.



(Fiction)

THE KID AND THE CRISIS

By BILL ANDREWS

January 3, 1951

Harry Dexter came on my staff as an assistant safety engineer in September. I've tried to pace him on the job, working him through the routine assignments, not expecting too much of him.

But Harry is hard to hold back. He's quick, intelligent, enthusiastic. For a kid just out of engineering college, he's pretty practical and well-informed. And allowing for the handicap of his obvious youth, he's got a personality that goes over well with most people in the shop.

So yesterday I sent him down to Galeston to do a few chores for me at our assembly plant there. This morning's mail brought the following letter from Harry.

Galeston, Ind.
January 2, 1951

Dear Boss,
Naturally, I was happy to get

this assignment, my first more or less on my own.

I checked on the accident of last Friday. The victim, an assembler, tripped on a stair and fell down seven steps. Wrist sprain, bruised shoulder, probably six days disability. Stair tread and lighting O.K. The girl claims somebody bumped against her, making her lose her balance. It was lunch time, so there were a lot of people on the stair at the time, and we can't find who, if anybody, actually pushed her. I watched at noon today, and quite a few of the younger workers came down in a hurry.

I got a brainstorm for a special poster on the theme — a blowup of a photo of the girl who was hurt, her wrist all taped up. The slogan would be, "It pays to take it easy here — I Know!" And her signature in big letters below. Will you O.K. \$15 for a commercial

photographer on this? The gal's willing to let us use her picture, and she's kind of cute.

After checking the accident, I started on the list of follow-up points on your list. Shipping has taken care of the aisle marking. I didn't see any guards removed on the cutters. Fire hose looks O.K., but my inspection was pretty superficial. I just didn't have time to take any of it off the racks. I checked Malone on his supervisor meetings, and they've been held. Minutes will be typed up and forwarded soonest.

So far, so good. But I ran into a snarl with Diehl. I wandered into his department, as you suggested. The housekeeping isn't good. That employee who wrote you the squawk letter didn't exaggerate much. I saw a man tip a can of oil enough to spill some. He started to mop it up with a rag. But there was so much litter on the floor that he soon had a little mound of chips, excelsior, and cigarette butts, all gummed together with oil. He gave up and left the mess, and a minute later another man slipped on the stuff, almost fell, cussed, and walked on.

I thought I was being diplomatic when I talked to Diehl. I asked how things were going, how he was feeling. Then I brought up the matter of housekeeping, referring to that safety committee meeting held a month ago, and to the fact that the members who beefed last month would be expecting a report on correction. I didn't mention the letter we got, or the fact that you specifically instructed me to check up on him. I didn't say anything about what I'd noticed myself.

Diehl was pretty defensive. He wanted to know why we in the safety department were so concerned about petty details of his operation.

"Look," he said. "This department has had two lost-time accidents in 18 months. One was an eye accident — because a dumb operator didn't wear his goggles. The other was a trucker who dropped a load on his foot. Neither

one of them had anything to do with housekeeping, so I don't see what business it is of yours.

"And, in the second place, how in hell am I expected to keep a shop neat with a bunch of sloppy workmen and a budget that won't let me hire anybody extra to swing a broom? Anyhow, why doesn't maintenance do a decent job?"

I tried to talk the theory of employee representation on a safety committee. I tried to show that suggestions might have value, even if they didn't tie into the actual past history of disabling accidents. And I hammered, as I've heard you hammer, on the point that if management doesn't have a good reason for ignoring a suggestion from employees, it ought to act on the suggestion promptly and vigorously.

Bad Marksmanship

He went into a sulk at that stage, grouching about coddling the men. And finally he made the flat statement that housekeeping was good enough for all practical purposes. He finished that statement with an emphatic spit in the general direction of a cuspidor. From the state of the wall, it was obvious that this was not his first miss of the target.

I had enough sense not to say anything about the implications of that, but I did point out that even a casual inspection of the department showed that the men didn't feel they had to do a cleaning-up job as they worked, and I suggested, mildly I thought, that this indicated that they felt their foreman wasn't too concerned with the problem.

At that Diehl blew up for fair. He accused me of being a snooper. He accused you of being an interfering busy-body. He invited me to get the hell out of his office and stay out.

I had plenty of other things to do, so I let the problem drop for a while. Late in the afternoon, however, I was bulling with Lane, the new personnel man here. It

was Lane, not I, that brought up the question of Diehl.

Lane had spotted the beefs on housekeeping that came up in the safety committee meeting, and he has looked the shop over recently himself, noting that conditions were pretty bad. He asked me two specific questions: first, can we definitely establish that bad housekeeping is likely to produce accidents; and second, if it is, what do we, as the safety department, propose to do about it?

My answer was a lecture on the relationship of housekeeping to accidents in general, plus the statement that our job was to point out problems, attempt to secure co-operation of supervision, and if we weren't successful to toss the problem to plant management.

Lane then asked me if I thought I could get Diehl's cooperation. I had to say that I didn't have any clear idea of how to get it, but that you might have some good ideas and that I'd write and ask you.

Lane wasn't satisfied with that. "Something's got to be done now," he said. And in spite of my protests he called the plant manager and got us an invitation to come and talk it over. Before that session was ended, the manager had called in the general foreman and Diehl and given them hell. Diehl sat there, glowering at me, convinced that I was the villain in the piece.

Pain and Loss

So here's the situation: We're undoubtedly going to get a fast cleanup of that department. We've already made one enemy, and I suppose it's likely that the word will go around among the other foremen that we're trying to make a reputation for ourselves at their expense.

Personally, I doubt if our gains from my day's work will outweigh our losses, and I feel pretty sick about it. And yet, boss, what could I have done to have prevented this ill-will?

This has been a pretty good in-
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the LIGHTER SIDE

by SID HIX



A Communist is a guy who says everything is perfect in Russia but stays in America because he likes to rough it.



View of installation of Pease-Anthony for removal of fumes from the heat treatment of linseed oil. See diagrams on facing page for construction and operation details.

By J. C. DITTMER

DISPOSAL OF OIL AND VARNISH FUME

FACED with the problem of linseed oil fume disposal, the National Lead Company made a study of existing methods of fume disposal, dust removal, and air conditioning. Engineers of several companies were contacted, and catalogs and patent and technical literature were studied.

For various reasons the follow-

ing types of home-made or custom-built equipment were considered inadequate:

1. Fume condensers
2. Entrainment scrubbers
3. Counterflow packed tower scrubbers
4. Oil-coated air filters
5. Electrostatic precipitators
6. Various makes of scrubbers using water or oil sprays

Preliminary investigation narrowed the field to two basic methods: (1) burning the fume; (2) scrubbing the fume with water or solvents.

The former was rejected as too expensive. The cost per hour for gas was estimated at \$2.60 as compared with the cost of water and power to pump it estimated liber-

ally at 40 cents per hour per 1000 cfm. There is not enough heat obtained from the combustion of less than 1 per cent fume content to effect any appreciable fuel savings.

From the experience of some oil processing and varnish companies, the most practical and least costly method involved scrubbing the fumes with water. This method, however, had fallen somewhat into disrepute, principally for lack of incentive to study the problem.

In the past, lack of perseverance or finances apparently have led some to use make-shift devices. For example, consider a fume-scrubber in which there were two sets of 16 spray nozzles at two levels above the fume inlet, each

THE AUTHOR: J. C. Dittmer is Chemical Engineer, National Lead Research Laboratories, Brooklyn, N. Y. This article has been adapted from a paper delivered at a fume conference in Chicago held under the auspices of the Chicago Paint, Varnish and Lacquer Association.

nozzle having a capacity of 5 gpm but actually only delivering about 1-1/3 gpm of water. The water probably only flowed from each nozzle instead of spraying and consequently two such scrubbers wasted about 30,000 gallons of water per day without any effect upon the fume.

We believed the fume problem could be solved with an efficiently designed water-spray type scrubber. The use of water-cooled condensers was rejected because the fume particles are too dispersed in the air to come into contact with the surface of any practical sized condenser. From experience, we knew that a packed contact tower, wetted by water, was also ineffective. The tiny fume particles largely responsible for the denseness of the fume apparently streamlined right through it and the large particles gradually cemented the packing into a solid, sticky mass. Therefore, we turned to improved water spray types of scrubbers, particularly those with unusual methods of operation.

One of these is the gas-liquid jet contactor in which the mixed fume and air are drawn through a venturi throat by a high velocity water jet as described in the January 1943 issue of *Blast Furnace and Steel Plant*, entitled "Com-

bined Primary and Secondary Blast Furnace Gas Washer" by S. P. Kenney. The use of this contactor was being promoted by the Blaw-Knox Company in 1944 but it was unavailable to us for experimental purposes because of wartime restrictions.

Our next consideration was the adaptation of the principle of the Air and Refrigeration Corporation's "capillary air conditioner" to utilize oriented glass fibre contained in filter units sprayed with water or solvents and through which the fume would have to pass. In effect, this would be equivalent to a scrubbing action by impact of the fume particles with the water droplets of the spray and also a scrubbing action similar to a dripping-wet tower packing of tremendous surface area. While these filter units are doubtless satisfactory for air conditioning, they were found unsuited for linseed oil fume removal.

The study of technical literature in 1944 had revealed an interesting possibility in the Pease-Anthony Scrubber because of its design and because the scientific basis of its operation in handling fly-ash indicated its apparent superiority over existing water spray type of scrubbers.

As explained in the literature, the scrubber causes the fume to rotate rapidly in a cylindrical chamber, forms a suitable spray or fog of fine liquid particles in the region of the axis of the cylin-

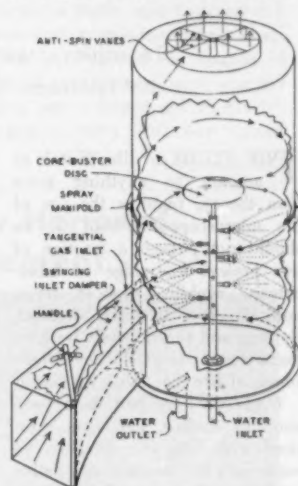
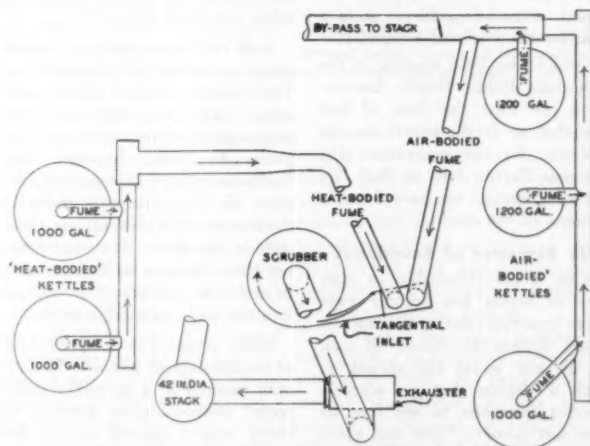


Diagram showing the construction and operation of the Pease-Anthony scrubber used for removal of linseed oil fumes from the air.



Arrangement of equipment used for the elimination of fumes from the heat treatment of linseed oil for the manufacture of paints and varnish.

der and causes these particles to traverse the fume radially until thrown out against the wall of the chamber by the centrifugal force of the rotating mass of fume. The rotation is produced by introducing the fume tangentially near the bottom of the chamber. The radial motion of the water particles across the fume stream causes them to collide with the fume particles and carry them to the walls from which they are washed and discharged from the scrubber.

An experimental scrubber was loaned to us by the Pease-Anthony Equipment Company and about 45 tests were made with it for eliminating oil fumes generated during the heat bodying of linseed oil. The results of these tests are described in the author's article in the March 1947 issue of *Chemical Engineering*, entitled "Fume Scrubber Effective on Linseed Oil Kettles." Kerosene with a flash

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Microscopes and Telescopes

By F. W. BEHMLER, M. D.

To achieve world-wide health, we need both microscope and telescope, to study our needs and those of other nations

THE STUDY of life, if it is to amount to anything more than theory, requires the use of the microscope. Without it, we should not possess a fraction of our present knowledge of tuberculosis, syphilis, typhoid fever, and all other bacterial diseases. By long and careful study we have learned many secrets of the minute forms of life that cause disease.

Often we have had the experience of finding our eyes grow tired with long concentration on some such tiny particle as a pathogenic organism or a blood cell. In our school days we sought relief by looking away from the microscope — out the window, over the tree tops, at the far away sky.

But how many of us, I wonder, have gone beyond that? How many of us have ever studied the worlds beyond our own as revealed by a giant telescope?

Looking at the universe through a telescope might seem to have little meaning for the public health worker. Yet at all times, and particularly at a time like the present, we may need to give our minds a rest from the close study of immediate problems. We need to take note of what is happening in the world beyond the scale of our microscopes.

At our annual meetings speakers have stressed the need for developing local health services. In a man-

ner of speaking, we have been looking at our health problem through a microscope.

Then Kund Stowman, of the U. S. Public Health Service, took us up on a hilltop and gave us a view of public health as it looks from the standpoint of the World Health Organization. He made us realize that we can't always pin down health and disease under an oil-immersion lens. We must also look at it through the great world-sweeping eye of a telescope.

Meeting local health needs is important — vitally important. But we must beware of developing the complacent attitude that, if we take care of our home-town problems, we need do nothing more.

"There can be no isolationism in the field of health," our old Minnesota friend, Dr. Herman Hilleboe, has reminded us. "The fight against disease is not a national or racial problem; it is a task for the whole of humanity."

And at the 1946 meeting of the American Public Health Association, just after the close of that war that we fondly hoped was the last one for our generation, Dr. Thomas Parran told us that "by force of events we have become citizens of the world."

No Respector of Boundaries

Our world citizenship in matters of health has become even more important during the last few years. Within the lifetime of most of us, our world has shrunk to such a degree that we scarcely need a telescope to see into its remotest corners. Time and again we are reminded that disease is no respecter of international boundaries — that health prob-

lems in any part of the world are our problems.

In the United States, we enjoy long life and our general death rate is low. Our children's expectation of life at birth is close to seventy years. Diseases that attacked us frequently in the early days — smallpox, typhoid fever, cholera — are now almost unknown in many states. Yet only the thinnest film of protection lies between us and many potential epidemics.

Bacteriological Warfare

As Dr. Frank Boudreau puts it, "A yellow fever mosquito may easily travel to this country as a stowaway on a plane from South America. A rat infected with plague may find his way from China, India, or South America. An apparently healthy passenger may be a carrier of cholera or other intestinal disease."

And no longer can we depend upon quarantine to safeguard us. That system worked pretty well when travel was slow and the plague spots of the world were far away. In 1950, however, the European refugee infected with typhus, the Brazilian with malaria, the Korean with cholera, are right outside our doors. We must combat these diseases at their source in order to prevent their spread into our own vulnerable territory.

Some people live in daily fear of bacteriological warfare. If they only realized it, a sporadic, undirected bacteriological warfare is being waged against us all the time. Bacteria menace us far more vividly and more constantly than bombs. Our only defense against

THE AUTHOR: Dr. F. W. Behmler, of Morris, Minn., is a past president of the Minnesota Public Health Conference. The accompanying article has been condensed from an address delivered on his retirement from that office, September 26, 1950.

such warfare is the building up of international cooperation. In a world in which cooperation on the political level seems at present an unrealizable dream, it is heartening to recall that it has existed for a long time in the field of health. Widespread public health is both an instrument and a condition of any lasting peace.

And listen to this comment by Raymond B. Fosdick, former president of the Rockefeller Foundation:

"An American soldier wounded on a battle-field in the Far East owes his life to the Japanese scientist, Kitasato, who isolated the bacillus of tetanus. A Russian soldier saved by a blood transfusion is indebted to Landsteiner, an Austrian. A German soldier is shielded from typhoid fever with the help of a Russian, Metchnikoff. A Dutch marine in the East Indies is protected from malaria because of the experiments of an Italian, Grassi; while a British aviator in North Africa escapes death from surgical infection because a Frenchman, Pasteur, and a German, Koch, elaborated a new technique. . . .

"Our children are guarded against diphtheria by what a Japanese and a German did; they are protected from smallpox by an Englishman's work; they are saved from rabies because of a Frenchman; they are cured of pellagra through the researches of an Austrian. From birth to death they are surrounded by an invisible host — the spirits of men who never thought in terms of flags or boundary lines and who never served a lesser loyalty than the welfare of mankind."

There you have two admirable examples of the telescopic view of public health. You may agree with that view in principle. But you may say that it doesn't exactly solve your local medical, nursing, or sanitation problems, and it doesn't throw much light on what we ought to do in the present situation, when those needs are being ominously underscored by the threat of total war.

Whether or not that threat ma-

terializes, it is likely that many public health people will be called upon for special services, thus jeopardizing our local health programs. I should be doing you no service if I brought my year as your president to a close with nothing more than the request that you try to take a broader view of all health problems. So, let me try to round out this valediction with a few concrete suggestions.

First, we must realize that the requisites for individual, public,

and world health are all interdependent. One individual's sinusitis or migraine may cause him to make a rash judgment, a wrong decision, a costly mistake. I should not be surprised if a future autopsy on Stalin were to reveal evidence of a gnawing gastric ulcer. Nor is it beyond the bounds of belief that nations were plunged into war a decade ago chiefly because a surly little boy named

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T. H. Carrow Honored on Retirement



In recognition of 40 years of safety work, Thomas H. Carrow, retiring superintendent of Safety for the Pennsylvania Railroad, is presented with an Award of Merit by the National Safety Council. R. P. Hamilton, retiring chairman of the Railroad Section and superintendent of safety for the St. Louis-San Francisco Railroad, presents the certificate while Mrs. Carrow looks on.

After more than 50 years of railroad service, Thomas H. Carrow retired December 1 as superintendent of safety for the Pennsylvania Railroad. For 40 years he was associated with safety work on the railroad and was a pioneer member of the National Safety Council's Railroad Section.

Mr. Carrow was born in Beaufort, N. C., and entered railroad service in 1900. In 1910, after several promotions, he was appointed to organize an employee safety program for the railroad, one of the early undertakings in this field. He became successively

safety inspector, supervisor of safety, and in 1927 superintendent of safety. He has served as general chairman of the Council's Railroad Section and of the Safety Section, Association of American Railroads.

At a meeting of the Railroad Section at the 38th National Safety Congress in October he was presented with a special Award of Merit in recognition of his many years of service to the cause of safety. From his associates in the Section he also received a wrist-watch and a billfold.

Training for Britain's Defense



Having learned the need for civilian defense in the bitter school of experience, Britain has recently launched a drive to add to the 47,000 who are already members of a nation-wide organization. Two battle schools, which take pupils through nearly actual conditions, have been organized. The graduates of these schools become instructors in their own areas.

The accompanying photos show two sides of training at a British

Civil Defense school. The top shows a method, called the Telfer Line, for rescuing a stretcher case from a bombed building.

The bottom illustration shows persons filing past a device for the detection of radioactive contamination. In case of atom bombing, such centers might be established near the bombed areas. The illustrations are from British Information Service.

Radiation-Absorbing Glass Announced

Several new radiation-absorbing glasses, developed through research in the University of Pittsburgh, have been announced by Dr. Alexander Silverman, head of the University's Department of Chemistry. These glasses seem to be of im-

mediate importance for the protection of atomic energy, atom bomb and hydrogen bomb workers to prevent radiation cataracts, from which some workers have already suffered.

Also, these glasses would seem desirable for the public in case direct or wafted radiations should result from atomic-bomb or hy-

drogen-bomb attacks, or from atomic energy plants which are already in contemplation or under construction by manufacturers of electrical equipment.

Cyclotrons, betatrons, etc., have been built at a number of universities and by the United States Government. Here workers need every possible protection. Roentgenologists in medicine and dentistry, and in industry and some retail trades, are also exposed to x-ray hazards.

The first glass is a high-energy phate. Its radiation-absorbing power is 50 per cent greater than that of previous commercial x-ray shielding glass. Furthermore, it does not discolor on exposure to the rays. This glass was developed by Joseph J. Rothermal, Kuan Han Sun, and Alexander Silverman.

The second glass is a slow-neutron absorbing glass containing cadmium borosilicates with fluorides. Its slow-neutron absorption is one-third that of pure cadmium sheet which is opaque. In other words, the new glass in a layer three times as thick as cadmium sheet affords equal but transparent protection for the eyes against slow neutrons. This glass was developed by Laben Melnick, Hurd W. Safford, Kuan Han Sun and Alexander Silverman. It is believed to be the world's first neutron-absorbing glass.

Both glasses should prove desirable for heavy transparent laminated peepholes in the safety barriers in atomic-energy plants, according to Dr. Silverman. They could be used in optical instruments which are employed in these plants and in science laboratories where radiation studies are made.

Goggles containing laminated lenses for both x-ray and neutron absorption are a possibility, or single lenses might be worn for protection against x- or gamma-rays only.

The investigators have all received their advanced degrees from the University of Pittsburgh.

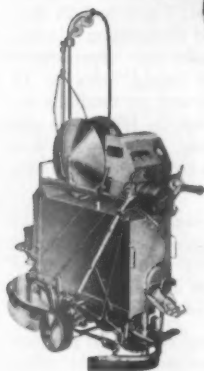
NEW SCRUBBER-VAC

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FOR SMALL-AREA FACTORIES



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- Applies the cleanser, scrubs, rinses, and picks up in ONE operation
- Also handles the dry work — steel-wooling, polishing, et cetera
- Can be leased or purchased (leasing budgets cleaning expense)



Now the labor-saving advantages of combination-machine-scrubbing are available to small as well as larger factories. The new 418P Finnell Scrubber-Vac, for small-area buildings with 2,000 to 15,000 sq. ft. of floor space, cleans floors in *approximately one-third the time* required with a conventional 15 or 18-inch scrubber-polisher using separate equipment for picking up. A Finnell Scrubber-Vac speeds cleaning by handling four operations in one! It applies the cleanser, scrubs, rinses if required, and picks up (damp-dries the floor) — all in a single operation.

Of narrow design, the new 418P Scrubber-Vac also meets the need in larger factories for a combination machine that can be used in congested areas and narrow aisles. And all the refinements of Finnell's larger combination machines are embodied in this smaller unit (18-inch brush ring). Has new type of water valve that *assures* uniform flow of water . . . powerful vacuum for efficient pickup (performs *quietly*) . . . a Finnell-developed trouble-free clutch . . . self-winding cable reel . . . improved waterproof wiring and minimum electrical connections, simplifying the cleaning of the machine . . . G. E. Motors and Timken Bearings. The machine is self-propelled—operator merely *guides* it. Supplied with or without powder dispenser. Incidentally, it's good to know that when you choose Finnell Equipment, a Finnell man is readily available to help train your maintenance operators in its proper use.

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IN ALL
PRINCIPAL
CITIES



Wheel of Good Fortune

By A STAFF CORRESPONDENT

NAPPANEE, IND.—“’Round and ’round she goes, and where she stops, nobody knows.” The old carnival cry might well echo through the plant of the Vitreous Steel Products Company at Nappanee these days. But what it takes to send the wheel of fortune spinning is not cash on the line but a good safety record.

Periodically the management sets a safety goal for the plant. It may be an accident-free record for a month, or a limit of one disabling injury in two or three months. If the goal is achieved, out comes the wheel of fortune, marked with the clock numbers of every employee in the shop. At the change of shift, the wheel is spun and an employee fires a dart at the whirling disc. The clock number struck wins a prize for the holder of that time card. The process is repeated several times, till the quota of prizes is distributed.

Sometimes, instead of a luck-determined distribution of prizes, there is a company-sponsored social affair and/or a distribution of a gift to all employees.

For example, the company broke its all-time accident-free record as

of the end of November of this year, going 22 months without a disabling injury. This brings a fully dressed Christmas turkey to the home of every employee. Sometimes the prize has been a picnic or dinner.

Vice-president H. B. Gray and Personnel and Safety Director

Everett Pippen, Jr., are convinced of the effectiveness of this program of awards for plant-wide records.

In 1945, the year the program was launched, Vitreo had 28 doctor cases and 10 disabling injuries. Steady, year-by-year improvement brought the record down to 13 doctor cases and no disabling injuries in 1948. In 1949 there was one disabling injury—the last reported up to press time for this issue.

Average employment during the period has been between 100 and 110. Total of man hours worked since the last disabling injury was 430,000 as of November 30.

Vitreo does all sorts of job porcelain enameling and fabricating of sheet steel. A large part of its work involves the use of punch presses. During the war it installed a foundry and concentrated on making casings for incendiary bombs. As a result, its post-war period was one of radical alteration in operations and personnel.

Gray and Pippen have some definite convictions on the way in which drawings for safety prizes

—To page 101



An employee of Vitreous Steel Products Company, acting as master of ceremonies, withdraws dart from "wheel of fortune." Worker whose name was found by flying dart will receive one of the wrapped hams shown on the table under wheel.

Greetings AND WARM Personal Wishes FROM THE LEGGE MEN OF AMERICA

							
GEORGE A. ARNOLD Chicago	ALFRED E. BERG Chicago	FRANCIS CHAMBERLAIN Boston	CHALMER D. CLOSE Chicago	PAUL CLYMER Spokane	G. CUNNINGHAM Pittsburgh	JAMES D. FRASER Philadelphia	
							
HAL C. FRAZIER Houston	J. PAUL GLENN Los Angeles	HOWARD J. GRAHAM Grand Rapids	THOMAS A. GUNN Rochester	J. EDWARD HEATH Boston	JOHN E. HENNESSY Chicago	ROBERT W. HOOTMAN Los Angeles	
							
WILLIAM L. JEFFERTS New York	CHARLES D. LEHMAN Denver	RALPH F. MCCONVILLE Denver	WALTER G. LEGGE New York	JOHN E. McLAUGHLIN Cleveland	E. WILLARD MERRITT New York	WARREN MERTZ New York	
							
S. A. MURRAY Seattle	EDWARD J. RABBITT New York	LORING I. REINHARD Basking Ridge, N. J.	ALBERT J. STEINER Detroit	KENNETH E. TENNEY Kansas City			
							
HARRY F. THOMPSON Phoenix	WILLIAM A. TROY, Jr. New York	GEORGE VAIL Atlanta	S. K. VAN REED Philadelphia	WILLIAM F. WARD Washington			
							
L. J. WILLIAMSON Indianapolis	JESSE J. ZEITNER Hartford	J. W. TURNER Toronto	G. K. MONTEITH Toronto				

THE ACCIDENT BAROMETER

Prepared by Statistical Division, National Safety Council

The death total for September was approximately 7,300, a 4 per cent increase over the September, 1949 total of 7,000. Increases were reported in deaths from motor-vehicle, occupational and home accidents. Public non-motor-vehicle fatalities showed no change from 1949.

The nine-month death total was about 66,200, or 2 per cent less than in 1949. Sizable reductions in public non-motor-vehicle and home accident deaths were partially offset by a large increase in motor-vehicle fatalities and a small increase in deaths from occupational accidents.

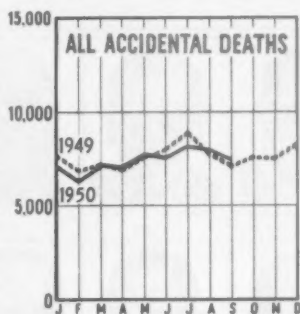
Motor-Vehicle Deaths

The motor-vehicle death total for September was 3,100, about 5 per cent above the September, 1949 figure of 2,950.

Deaths for the nine months totalled approximately 24,580, an increase of 11 per cent over the 1949 comparable figure of 22,240. Compared to 1948, it was an increase of 7 per cent.

The death rate per 100,000,000 vehicle miles was 7.0, a slight decrease from the 1949 nine-month rate of 7.1.

Of the 46 states reporting for nine months, 37 reported more deaths than in 1949, 2 had the same number, and 7 had fewer deaths. Reporting cities with populations over 10,000 had an in-



	1950	1949	Change
September	7,300	7,000	+4%
Nine Months	66,200	67,700	-2%

crease of 10 per cent for September and 7 per cent for the nine months.

Regional changes from 1949 in the nine-month death totals were:

North Atlantic	+ 4%
South Atlantic	+17%
North Central	+ 8%
South Central	+17%
Mountain	+22%
Pacific	+ 6%

Occupational Accidents

Deaths from occupational accidents numbered approximately 1,300, or 100 more than in 1949. The total for the nine months was about 11,600, an increase of 4 per cent over 11,200 in 1949.

The September frequency rate for plants in community council inter-plant contests was 10.20, a 7 per cent increase over 1949. The

September rate for plants in the seven National Safety Council sectional contests was 6.49, a decrease of 6 per cent from 1949. The nine-month rate in the community council contests was 9.01 — down 10 per cent; while in sectional contests it was 6.73, a decrease of only 3 per cent.

Public Deaths

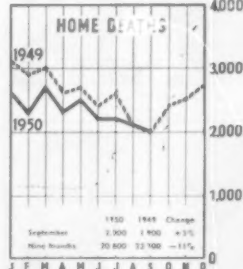
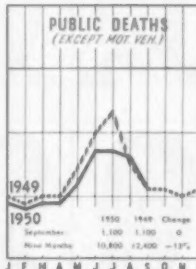
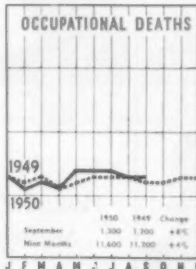
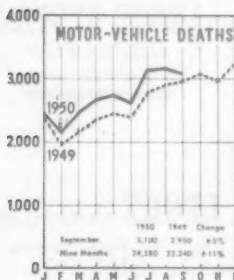
The total for public non-motor-vehicle deaths in September was about the same as in 1949—1,100.

Deaths during the nine months numbered about 10,800, a decrease of 13 per cent from 1949. There were sizable reductions in deaths from transportation accidents, drownings and falls and a small decrease in deaths from firearms accidents. A small increase was reported in deaths from burns. Fewer deaths than in 1949 were recorded for all age groups, but most of the reduction occurred among persons 15 to 44 years of age.

Home Deaths

September deaths from home accidents numbered approximately 2,000, or 100 more than occurred in September, 1949.

The nine-month death total was 20,800, a reduction of 11 per cent from 1949. Sizable decreases occurred in deaths from mechanical suffocation, falls and unclassified home accidents. Fatal poisonings, burns and deaths from firearms accidents showed little change from 1949. Decreases were reported in all age groups with the greatest improvement recorded for persons 65 years and over and the least improvement reported for persons 15 to 24 years old.



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West of the Rockies, it's the Ampco Burbank Plant, Burbank, Cal.

Handling Scrap by Remote Control



What is perhaps television's longest continuous show goes on at the new Pittsburgh plant of Fisher Body Division, General Motors. Ed Wilmons, scrap baler, stands at control panel which governs conveyors bringing scrap to baling area, basket which dumps scrap into baling area, a compressor which squeezes scrap into 800 pound blocks, and conveyors which carry baled scrap to waiting gondolas. Arrow points at television screen over his shoulder which shows when car is loaded and ready to be moved by automatic controls. Television camera is mounted on roof of building. Inset shows enlarged picture of view on screen.

TO make a roof for a car body, or a door panel, or a fender, it is necessary to start with a piece of flat metal larger than the finished piece. The trimmings in a large plant may amount to many tons a day.

This scrap is valuable. It is shipped back to the mills to be melted into batches of fresh steel. But scrap is difficult and often hazardous to handle. Pieces are of odd sizes, with sharp and jagged edges. They also have a cer-

tain amount of spring which makes them dangerous to touch.

In modern plants, scrap drops from presses into a conveyor without being moved by human hands. The conveyor carries it to a baler which squeezes batches of small pieces under heavy pressure into bales.

To facilitate the handling of scrap, the new Fisher Body plant of General Motors at Pittsburgh has made one of the first industrial applications of television. The men who operate the two balers in the press pit each have a television screen.

As the 800 pound blocks of baled scrap leave the balers, they move into a conveyor which carries them to a chute above a railroad track outside a plant 300 feet away. The bales drop down a chute into a waiting railroad car. The picture of the car-loading operation is constantly reflected on the monitor screen, allowing the baler operator to see when the car needs to be moved in order to fill it uniformly.

A car puller is located at the scrap car and can be operated from the baler control station in the press pits. When the car is ready to be moved, the operator pushes a button, moving the car.

The plant is equipped with a transmitter and receiver consisting of two monitors, one camera and one power unit which is used to expedite the loading of scrap into railroad cars. With this equipment, the operator of the scrap baler can at all times watch the gondola scrap car located on a track outside the building.

The camera is mounted on a beam extending from the southwest edge of the building roof. It is focused on the discharge end of the baled scrap conveyor. Eight 1500-watt floodlights illuminate the area at night.

Light rays are transmitted from the camera to power unit mounted alongside the camera. These light waves or pictures are transmitted from the power unit to the monitor screen located at the baler unit inside the plant.



B R E C K

BRECK WATER RESISTANT CREAM PROTECTS SKIN AGAINST WATER SOLUBLE SUBSTANCES

Breck Water Resistant Cream is easily spread onto hands where it forms a uniform film, resistant to the action of water and water soluble substances. It is effectively resistant to removal during the working hours, but easily removed by ordinary cleansing methods when work is finished. Breck Water Resistant Cream helps to protect the hands against water solutions such as liquid coolants, water soluble cutting oils, flux fumes, cement, lime and spray from alkali baths or plating solutions. Breck Water Resistant Cream will avoid defatting of the skin by soap solutions, dilute alkalis and solvents. One application will last from three to four hours.

Other Breck Industrial Preparations are Breck Hand Cleaner, a mild non-alkali skin cleanser, and Breck pH7 Protective



Cream, for protecting skin from grease, paint, and similar substances that are apt to become embedded in the skin.

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Celanese Corp. of America

Newark, N. J., Plant — Injury rate reduced 60 per cent and severity rate 20 per cent in 1949 as compared with 1948. For 1949 the injury frequency rate was well below the average and the severity rate only 21 per cent of such average. Award was presented December 15 by the New Jersey State Safety Council.

★ **Clark Equipment Co.**

Buchanan, Mich. — Injury frequency and severity rates for 1949 only 13 per cent of group average. Injury frequency rate reduced 67 per cent and severity rate 26 per cent in 1949 as compared with 1948. Award was presented November 21 by Ned H. Dearborn, president, National Safety Council.

Ford Motor Co.

Lincoln-Mercury Div., Meteor, N. J., Assembly Plant — For operating 6,331,235 man-hours without a disabling injury from October 29, 1948, to August 14, 1950. Award was presented November 30.

With the current issue, this department is discontinued as a monthly feature. New rules governing the DSS Award, effective October 15, 1950, remove the award from an application basis. Beginning in 1951, the names of all companies and plants qualifying under the new rules will be announced at one time. To clean the slate, this listing includes not only those awards presented since the last appearance of this column in the November issue but also awards granted prior to October 15 that are awaiting presentation.

General Electric Co.

West Lynn, Mass., Works — Injury rate for 1949 only 19 per cent and severity rate 17 per cent of group average. Frequency rate reduced 33 per cent and severity rate 64 per cent in 1949 as compared with 1948. Award presented December 5.

General Shoe Corp.

Cowan, Tenn., Plant — For operating 3,133,238 man-hours without a disabling injury from February 1947 to August 1950.

The Oliver Corp.

Battle Creek, Mich., Plant — Injury frequency rate for 1949 only 11 per cent and severity rate 0.4 per cent of group average. Frequency rate reduced 43 per cent and severity rate 99.9 per cent in 1949 as compared with 1948. Award presented November 20 by Ned H. Dearborn, president, National Safety Council.

★ **Tennessee Eastman Corp.**

Kingsport, Tenn. — Injury frequency and severity rates for 1949 only one-third of group average. Frequency rate reduced 40 per cent and severity rate 10 per cent in 1949 as compared with 1948.

Awards Prior to October 15

(Not presented at press time)

★ **American Viscose Corp.**

Front Royal, Va. — Injury frequency rate reduced 52 per cent and severity rate 98 per cent in 1949 as compared with 1948.

Carnegie-Illinois Steel Corp.

★ *Duquesne, Pa., Works* — Injury frequency rate reduced 33 per cent and severity rate 69 per cent in 1949 as compared with 1948.

★★ *Edgar Thompson Works, Braddock, Pa.* — Injury frequency

rate reduced 46 per cent and severity rate 76 per cent in 1949 as compared with 1948.

★ *Gary, Ind., Works* — Injury frequency and severity rates reduced 11 per cent in 1949 as compared with 1948.

Continental Oil Co.

Ponca City, Okla. — Injury frequency rate reduced 32 per cent severity rate 91 per cent in 1949 as compared with 1948.

Deere & Co.

John Deere Dubuque Tractor Works, Dubuque, Ia. — Injury frequency rate reduced 52 per cent and severity rate 78 per cent in 1949 as compared with 1948.

President's Conference Reports Now Available

Reports and proceedings of the 1950 President's Conference on Industrial Safety are now available without charge. These comprise eight documents, one containing the various speeches and action of the 1950 Conference and the seven other bulletins the individual 1949 and 1950 committee reports.

Following are the titles and numbers of the bulletins.

130. President's Conference on Industrial Safety—Progress Meeting, June 1950.

131. Reports of Committee on Accident Records, Analysis and Use.

132. Reports of Committee on Education.

133. Reports of Committee on Engineering.

134. Reports of Committee on Laws and Education.

135. Reports of Committee on Research.

136. Reports of Committee on Labor-Management Cooperation for Safety.

137. Reports of Committee on Programs and Services.

Requests for copies of these bulletins should be addressed to William L. Connolly, Coordinating Committee Chairman, President's Conference on Industrial Safety, U. S. Department of Labor, Washington 25, D. C.

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Sunglasses — Facts and Fiction

By Col. Victor A. Byrnes (MC)

THERE is a large amount of misinformation, distorted information and half truths in the minds of many individuals concerning the use of ophthalmic filters (sunglasses) as protection against glare, ultraviolet, etc.

Sunglasses are not required to protect eyes against damage produced by exposure to sunlight. The eyes are not damaged by sunlight unless the individual stares at the sun. Sunglasses can only protect against discomfort produced by high intensity illumination. If an individual has no discomfort in sunlight, there is no necessity for wearing sunglasses.

There are two classes of people who are uncomfortable in sunlight; those who have actual eye ailments and those lightly pigmented or unusually light sensitive. The group with eye ailments obviously should be treated by a doctor. The light sensitive group with no disease can be properly equipped with ophthalmic filters. This group includes red heads, platinum blondes, and others with little pigment in their eyes.

Since so-called sunglasses can only protect an individual against discomfort from glare they should be worn only while the individual is exposed to bright light. They should not be worn at other times because they reduce the wearer's tolerance to light. It is satisfactory to wear them at the beach, hunting, fishing, skiing, driving and working outdoors in bright light, but they should not be worn indoors. Individuals who wear sunglasses with optical corrections should have clear lenses for wear when out of bright light. This is especially important for night driving.

The amount of light transmitted through the lens should not exceed 20 per cent for ordinary sunglass use. Most individuals prefer about 15 per cent and if they are to be exposed to the very high bright-

ness of snow fields or beaches it may be further reduced to 5 to 8 per cent. No commercial "sunglass" can be used for looking at the sun. There is so much infrared and visible light energy in sunlight that looking at an eclipse will cause definite retinal damage. Special lenses are required for this purpose.

Lenses should be matched to within 1/5 of the total light transmitted. For example if a lens transmits 15 per cent of light, its fellow should not transmit less than 12 per cent. Greater differences may result in suppression of one eye. Even 3 per cent differences at this light level will produce measurable changes in depth perception.

The eye is as sensitive to peripheral brightness as it is to central light, so the lenses should extend out far enough to cover the entire visual field. It is for this reason that clip-on sunglass lenses are unsatisfactory.

The color of the sunglass is important if color perception is important to the wearer. In such cases as aircraft pilots or railroad engineers a neutral density lens which transmits equal amounts of all wavelengths of light is required. For individuals who must recognize traffic lights such lenses are also desirable. Particularly is this true if the driver has a mild color defect. For others the selection of the color of the lens, whether rose colored, sage green or what not, may be left to the

personal taste of the buyer.

The sunglass lens should not have significant amounts of prismatic, converging or diverging effects on light rays because of possible decrease in visual acuity of the wearer or the production of eye discomfort. They should also have smooth unpitted surfaces with no distortion in the glass.

There is a great individual variation in sensitivity to glare. Glare is produced by one area of a visual field being brighter than the balance of the field. Use of ordinary sunglasses will not eliminate glare because it reduces both the background and the brighter area by the same percentage and leaves the same brightness difference between them. Polarizing lenses can sometimes be used to selectively reduce bright spots in the visual field if the light in these spots is polarized.

Dark sunglasses worn during the day are useful in preserving an individual's night vision if he is planning on moving around in the dark *without lights*. Its importance has been over-emphasized recently, however, for the individual who is going to drive a car using its headlights. For occasional exposure of reasonable duration at the beach this effect is not important. In fact, night vision problems have significance only to the military—not civilian life.

All types of colored lenses and colored windshields are dangerous in driving at night. They reduce the distance which an individual can see with headlights. This is particularly true of the blue lenses and windshields. Headlights produce a very small amount of blue light which passes through blue lenses and windshields. These blue lenses and windshields very effectively absorb the red and yellow light which comprises most of the headlight spectrum. Lenses and windshields for use at night should be clear and clean.

Editor's Note: At the request of the Joint Committee on Industrial Ophthalmology of the American Medical Association and the American Academy of Ophthalmology and Otolaryngology, Colonel Byrnes has prepared this statement representing the opinion of the Committee. Other members of the Committee are: A. D. Ruedemann, M.D.; Hedwig S. Kuhn, M.D.; Glen H. Harrison, M.D.; John B. Hitz, M.D., and E. B. Spaeth, M.D.



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RANGLES MANUFACTURING CO.,

National Safety News, January, 1951

OGDENSBURG, N. Y.

Mechanical Noses Sniff Escaping Gas

TO protect life and property against fire and explosion hazards due to escaping combustible gases, "mechanical noses" have been installed in the plants of the Goodyear Tire and Rubber Company at Akron, Ohio. These "noses" are combustible gas indicators developed by Mine Safety Appliances Company. Functioning 'round the clock, they are located in such places as the dryers in the Pliofilm plants; at the post-dip calender units drying towers in the tire plants, and, more recently, at the tank farm at the company's synthetic rubber plant.

At this latter location, four of the units continuously sniff the air around the two 20,000-gallon tanks in which butadiene is stored under pressure as a liquid. The "noses" detect and give warning of the presence in the atmosphere of combustible gases before they can reach explosive concentrations.

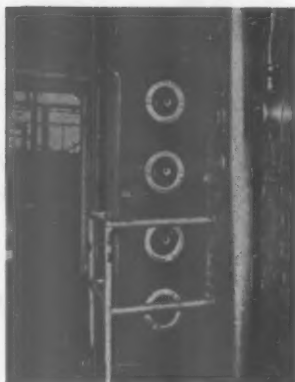
Prior to installation of the combustible gas alarm units at the tank farm reliance for detection

of leaks was placed on the human senses of hearing, sight and smell.

Escaping butadiene usually from packing glands and unions would create a hiss which would be heard by those working near the leak. At the point of escape, the leak would appear to the eye as a light, quickly dispersed, cloud. Atmospheric moisture also would "frost" at the point of exit. Both could be determined by sight during daylight hours or after dark if the point of leak was well illuminated.

Finally, a cloying, sweetish odor, faintly present at all times around the storage tanks, could be detected by smell, but usually not until the concentration was a heavy one.

The units at the butadiene tank installation were calibrated to detect the presence of butadiene gas in the atmosphere when concentrations reached 30 per cent of the lower explosive limit. When such concentration is reached, warning signals, both audible and visual,



These "mechanical noses" sample atmosphere around the butadiene tanks at the Goodyear synthetic rubber plant at Akron to detect escaping gas. Warnings by means of horns and red indicator lights are given when concentrations reach 30 per cent of low explosive limits.

are activated. The former warning consists of horns, one located within the building housing the four-unit panel, the other in the outer area adjacent to the storage tanks and the pump house. The visual signal consists of red warning lights which flash on at the panel.

According to Joseph L. Shifflet, fire chief for Goodyear's Akron plants, in the first nine months that the system was in operation at the tank farm, there were three instances when concentrations of gas exceeding the alarm setting were detected. The prompt automatic warnings enabled personnel to quickly locate the leaks, close off the affected areas of lines, open by-pass valves and take other measures both to conserve the supply and to dissipate the escaped gas. This, being heavier than air, pockets at low points.

The explosion-proof type of combustible gas alarm system installed by Goodyear provides means for continuously sampling, analyzing and controlling the explosive hazards before they develop to a critical stage. Pumps continuously draw samples from the atmosphere at various points. These atmosphere samples pass



Test of fire protection of butadiene tank farm at Goodyear synthetic rubber plant at Akron. Combustible gas alarm system gives warning when concentration of gas reaches 30 per cent of lower explosive limit. Should concentration reach 60 per cent, waterfog system is actuated. As shown above, waterfog swirls upward as high as 90 feet from the ground, creating a vortex that lifts and disperses gas.



A permanent record of atmospheric conditions and concentrations of combustible gases found at sampling points is maintained by this recording potentiometer. Working in conjunction with a four unit panel installation of a combustible gas alarm system, this device gives a record of conditions at any sampling point at any time during a period of one month.

over one of two heated activated platinum filaments which form a balanced electrical circuit. The first filament is known as the detector, while the second, or compensator, is sealed in a cell containing air. Any combustibles present in the sampled air are burned upon contact with the hot platinum wire of the detector unit. This increases the temperature and consequently the resistance of the platinum wire and, in turn, unbalances the electrical circuit in proportion to the concentration of combustibles in the sample.

Children Awarded Safety Essay Prizes

Prizes totaling \$700 were awarded recently to winners in a safety essay contest on "Why My Dad Should Work Safely" conducted by the Pabst Brewing Company and open to employees' children.

Participants included children of employees from the Milwaukee, Wisconsin, and Newark, N. J., Pabst breweries. To enable children of various ages to compete on an equitable footing, the contest was divided into two age groups — the first, open to children up to 13 years of age; and the second for children from 14 to 16.

All awards were made in the form of savings bank deposits.

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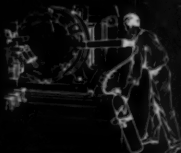
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SIMPLIFIED FIRE EQUIPMENT



the industrial safety panel

Discusses

Difficult Days

THE QUESTION:

What was your toughest day in safety work?

THE PARTICIPANTS:

D. E. MUMFORD, Superintendent of Safety, New York Central System, New York.

C. J. MUNK, Safety Engineer, The Racquette River Paper Company, Potsdam, N. Y.

G. A. RILEY, Supervisor of Safety, American Brake Shoe Company, New York.

HERSCHEL L. SMITH, Safety Engineer, General Electric Company, Fort Wayne, Ind.

TOUGH DAYS? Everybody has them, regardless of occupation. But safety work, with its quest for perfect performance by imperfect human beings and mechanisms which sometimes suffer from wear and neglect, is more subject than some others to days of disappointment and frustration, as well as times of satisfaction and accomplishment.

Having a splendid safety record upset by somebody's gross negligence, breaking the news to the family of an accident victim, days of disaster and those of a series of petty mishaps and failures — all these are things that safety men don't like to remember. But the safety movement has progressed

because they refused to be downed by failure and were able to keep others from becoming discouraged.

In this Panel four safety men representing different industries tell their experiences.

No Time to Eat

MR. MUMFORD:



Sure, I could look at all of those days of frustration, anxiety or worry and call them tough but I would rather emphasize the word "work" and leave the "tough part" to be measured in terms of

effort rather than in terms of worry or frustration.

As I think back over the years, my mind goes to an all-out "round the clock" effort we were just inaugurating. We started out with a grandiose plan of reaching all of the employees in one of our large manpower locations on a "round the clock" basis, talking to each group in the terms of their own job and the hazards involved, all this to be done with a two-man team.

We started in the stationmaster's office and after we finished the first group he told us to stay right there and he and the Trainmaster would get the men to us as he felt we could make a much better use of his office than he could. Meanwhile, another ambitious official had lined up a tour of outlying points for my fellow safety worker and I was left all alone. First there was a group of road trainmen, then a group of yardmen, next perhaps a group of stationmen, then trackmen, signalmen, building maintenance workers, equipment department employees. The groups were as varied as the occupations on the railroad. They had the men lined up in groups outside the door so that as fast as one group was finished and ushered out another group took their place. These were all extemporaneous talks geared specifically to the man's job and to the

THE INDUSTRIAL SAFETY PANEL is an informal group representing various branches of industry. From time to time its members are asked some questions relating to accident prevention principles and methods.

The Panel includes personal views as well as expressions of company policy.

The limited sample of experience and opinion presented in the Panel inevitably leaves some angles of the subject uncovered. Comments of readers will be welcomed for publication by the editors, also suggested topics for future discussion.

hazards inherent to that job. In my enthusiasm for the job to be done and the manner in which my efforts were being received, I kept on, forgetting about personal things such as eating or resting.

When the situation cooled down to where we could reach a lull in those immediately available as listeners and my assistant had returned, ready to take up the next assignment, I totaled the day's efforts and found that in 24 hours I had talked to 28 different groups in that many meetings, each group getting 20 minutes of hard-hitting, thought-provoking safety talk.

It was a big day, but for the sake of self-preservation I have not cared to undertake such a day since.

Breaking the News

MR. MUNK:



Going back in memory, over a period of about 23 years of safety work; June 3, 1941, I believe marks my toughest day in safety

work. Not that I have not had other days almost as tough but on that day I experienced the first fatal accident in our plant.

The day, as I remember it, was quite warm and a car load of bagged clay had been spotted for unloading. Two men working in the car, carried the bags to a chute entering the building where it was loaded on the regular two wheeled hand trucks and trucked about one hundred feet to the storage piles.

Due to a shortage of space, some bales of sheet sulphite had been piled near the chute the day before. These bales weighed about 1400 pounds each and were piled about ten bales high.

The time was about 10:30 a.m. and I had just started through the mill on an inspection trip. A yard man came running up and excitedly announced that one of his crew had been hurt by falling bales in the storage building.

I directed the employee to get the stretcher, grabbed some first aid equipment and started for the scene of the accident. On arrival, I found that the injured man had been pulled from under some

bales and was lying on his back near by. His left leg had a peculiar twist, and there was a strange pallor on his face. He was conscious and as I made my examination he explained the accident. He did not apparently have any pain except in his back.

"I was loading my truck and suddenly I noticed the pile of bales start to fall. I tried to get away but was not quick enough. The bales caught me and I felt a bad pain in my left leg as I was

knocked to the floor. A couple of other bales struck me and I could not help myself get up. One of the other boys held up a bale that pinned me down and another pulled me out by my shoulders and arms. How bad do you think I am hurt? It's funny I can't move my legs. Do you suppose they are both broken?"

I tried to reassure him. I made sure that no one would move him and called the doctor and an am-

—To page 94

PREVENTS ACCIDENTS

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Green Cross News . . .

Activities of Local Safety Councils and Chapters

Hedda in New Role

Hedda Hopper, Hollywood's famous gossip columnist, was special guest and mistress of ceremonies at the Annual Industrial Award Dinner of the Greater Los Angeles Chapter, NSC, held on Wednesday, December 6. C. B. Tibbets, president of the Los Angeles Steel Casting Company, gave the featured address, "Safety — a President's Responsibility." The Jefferson High School "Madrigal Singers" provided the music. Dinner was served at the Hollywood Roosevelt Hotel to a capacity crowd of industrial safety people.

Called into Service

Frank A. Jones, manager of the Pasadena Safety Council, who served through World War II as a submarine officer, has been called back to active service and reported for duty on December 5. Robert L. Dunn, executive secretary of the Pasadena Junior Chamber of Commerce for the past two years, will take over the chapter managerial duties during Mr. Jones' absence. Dunn has had wide experience in public and community relations work.

Blackstone Valley Series

A series of six monthly evening sessions for industrial foremen started in late October at Pawtucket, R. I. under sponsorship of the Blackstone Valley Safety Council. Charles E. Shea, Jr., President of the Council, presided. This is the 10th year of the series in Pawtucket. The 1950-51 programs include plant visitation

meetings and at the November 23 session more than 400 foremen and other supervisors made the visit to study the safety program at the Crown Manufacturing Co. This was the largest attendance that the Blackstone Valley meetings have had at any of the sessions.

Public Employees Courses

In the September *Community Council News Letter* mention was made of a one-week course in "Safety for Public Employees" sponsored by Western Reserve University, Cleveland, in cooperation with the Greater Cleveland Safety Council. The course, held October 9-13, was described as "the first of its kind" conducted by colleges or universities. The City College of New York City calls attention to the fact that it conducted a similar course for public employees last May and the series was so successful that it will be repeated annually. Guest speakers from the NSC and officials of the city of New York provided the instruction. The City College program was directed by Alfred R. Lateiner, supervisor of in-plant training courses at City College. Municipal, state and county employees attended the series.

"Three-in-One Session"

A joint meeting of the Industrial Nursing and Health section, the Industrial Division and the Engineering Divisions of the Greater Grand Rapids Safety Council was held at Trinity Lutheran Church in that city on October 24. The speaker was Dr. Howard J. Schau-

bel, traumatic surgeon, and he discussed "Strains, Sprains and Hernias." On the same date the Commercial Fleet Session conducted a panel discussion on "The Accident Repeater," in another part of the church.

A dinner, attended by representatives of all the sections, preceded the evening program.

"Louisiana Safety News"

A new monthly publication is announced by the Louisiana Safety Association, Inc., with Charles E. Doerler, manager of the Caddo-Bossier Safety Council at Shreveport, as editor. The publication, called "Louisiana Safety News," is a four-page tabloid size newspaper. It is a printed job with halftone illustrations.

Nod from Uncle Sam

Durand C. Young, manager of the Sioux Falls, S. D. Safety Council for the past three years, has entered the United States military forces, called into service by Uncle Sam. Young, a veteran of World War II, reported for duty in early January.

Festival Series

Plans are being developed for another "Green Cross Song Festival" series to run for 13 weeks over an NBC network, probably in early Spring. Eighteen chartered councils and chapters have applied for participation and from this list NBC will make its final selection of the 13 cities to carry the programs, if present plans can be worked out. Each city, through the cooperation of the local coun-

cil or Chapter, arranges for a local á cappella choir to present the musical numbers. The choirs are all high school organizations, to tie in with the general theme of the series, teen-age driving.

Foremen's Institute

The Tenth Annual Foremen's Safety Institute of the Industrial Safety Division of the Fort Wayne Chamber of Commerce, was held November 16, starting with a buffet dinner at 6:15 P.M. A large attendance turned out for the evening program, to hear J. E. Te-Poorten of Madison, Wisconsin, an authority on vocational and adult education and job training. Safety films and entertainment, with "Safety Ace" award presentations to foremen who made best safety records the past year, rounded out an interesting and instructive evening.

Atlanta Industrial Section

President Dearborn of the National Safety Council was the speaker at the Industrial Section organizational dinner of the Greater Atlanta Safety Council on November 17. An enthusiastic audience of 200 industrial leaders of the Atlanta area attended the meeting. The newly formed section plans a broad program of activities including an industrial contest among plant members, and regular monthly meetings of safety engineers throughout the area covered by the Chapter.

Announce Course in Radiological Health

An inservice training course in radiological health has been announced by the University of Michigan School of Public Health to be held February 5-8, 1951. Assisting in the course are the Atomic Energy Commission, the Michigan Office of Civilian Defense and the United States Public Health Service.

This four-day non-credit course will cover orientation, ways ionizing radiations are used, biological and medical effects, and public health implications.

Sessions will be held in the School of Public Health Building, Ann Arbor.

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ASKED and ANSWERED

Assistance with problems of accident prevention and industrial health is offered by National Safety Council. All inquiries are answered by mail and a few topics are selected for publication.

Powered Hand Trucks

Question: What rules do you recommend for the safe operation of electric transporters?

Answer: The New ASA Safety Code for Industrial Power Trucks, B56.1-1950, defines these devices as "powered hand trucks . . . designed to be controlled by a walking operator."

The code excepts the devices from the usual requirement for warning equipment, such as horn, whistle or gong, but the only specific rule applying to their use is the following:

"833. When a powered hand truck is operated by a walking operator (not riding) the truck must be backed into an elevator to eliminate the chance of the operator being caught between the handle of the machine and the wall of the elevator car."

This rule suggests the principal hazard in use of powered hand trucks, that of following too closely and pinning the operator against a wall or other obstacle, or rolling against his heels. Obviously this must be covered in suitable rules and in the training of the operators.

Oil Pneumonitis

Question: Does the oil-laden air produced by the coolant in aluminum machining operations present a health hazard?

Answer: A discussion in the Archives of Industrial Hygiene and Occupational Medicine, January 1950 issue, reported a case of "Chronic Lipid Pneumonia following Occupational Exposure," in which a cash register repairman cleaned the mechanisms with a solvent and sprayed them with Grade 10 liquid petrolatum. An exhaust fan at the top of the three-sided booth "failed to remove the

fumes and the oil mist would become so thick at times the operator found it necessary to leave the booth to get fresh air."

In cases where mists cannot be exhausted by fan installations, an electrostatic precipitator is recommended. This device picks up the oil laden air at the tool, passing it through a chamber in which are a number of positively charged electrodes, centrally located with respect to negatively charged plates or pipes on which the entrained ionized matter is collected. The air is then recirculated.

Such an installation is quite expensive but is found practical in cases where valuable materials are reclaimed.

Although the only case of "oil pneumonitis" we have on record is the one mentioned above, it is possible that other cases are wrongly diagnosed as pneumonia.

Off-the-Job Accidents

(From page 25)

American workers were killed in off-the-job accidents. Industrial management can and does exercise a certain degree of control over the occurrence of accidents on the job. Generally, management is not in a position to exercise comparable control over off-the-job accidents, but experience has shown that activities can be developed as a supplement to industrial activities to stimulate employee interest in the prevention of accidents in his home, on the street, and elsewhere.

The management of many organizations has recognized the effect of off-the-job accidents on output and morale, but due to schedules of production and lack of personnel, the broadening of an existing safety program to include employee safety while away from work has been sacrificed in order to concentrate attention on circumstances easier to control — industrial accidents. These become easier to control because normally only one-third of a day is spent within the confines of the plant.

In our approach to the problem, we must not overlook the tremendous effect off-the-job safety training will have on the families



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of our employees. Such activities will help to eliminate the suffering caused by accidental injuries to many persons besides the employee. Because of the nature of the problem, the approach to the employee must be sufficiently broad in its appeal to arouse his interest in preventing accidents to those he loves. Suggestions and programs will have to be presented in such a manner as to make the worker receptive and to encourage his resourcefulness in practicing and thinking safety.

We shall have to realize, and make our workers realize, that accidents off duty are of concern to both the employee and the company. We shall have to accept the fact that management has no direct control over the behavior of an employee engaged in his own personal activities. In setting up and maintaining a program, this fact must be given proper consideration.

Personal Loss

One approach to the employee is to emphasize the personal losses that result from an accident. Certainly, we cannot tell a father that he must not lift his young son up on his shoulder while playing — but we can tell him how and what to lift when he is under our supervision and guidance and where we can observe and correct.

There should be no distinction between preventing accidents that occur on or off the job. If employees are properly educated in safety consciousness, they will use safe practices at all times.

Because off-the-job safety benefits every person concerned—management, employees, the families of employees, and the community—the program must be a cooperative one, backed by a labor-management committee if one exists, top management, and the labor organization. In the last analysis the success of such a program depends upon the efforts of the individual employee, upon the members of his family, and the general public. Industry is not the only one to benefit from off-the-

job safety; the greatest beneficiaries are the employees and their dependents.

My first study of off-the-job accidents was made several years ago; at present I am collecting further information and shortly will prepare a report. Among the conclusions derived from these studies is the fact that any size or type of organization can conduct an effective program. The following are some of the essentials:

1. The program must have the interest and approval of management and the designation of a department or individual who will be responsible for off-the-job safety activities.

2. Such a department or individual should establish statistical data and other information on the subject to determine the activities required. Forms for reporting and recording the information will be needed.

3. Regular reports should be prepared on company experience and sent to interested parties. The cost factor should be included in such reports.

4. As part of the reports and records, a comparison of the on-the-job and off-the-job experience should be given, although some may prefer to maintain separate records.

5. Special programs designed to solve the particular problem should be conducted. A good idea is to study what the other fellow is doing. In addition it is well to solicit the assistance of safety councils and other safety-minded units, and use their offerings in your own program.

6. As in industrial accident prevention, an active and continued program to maintain the interest of employees in safety off the job will be needed. The type of material used in the program should be selected so that the message will be educational and suggestive rather than mandatory.

Too many of us are working *at safety* rather than *for safety*. If we are to continue the good work we have been doing, we shall have to apply ourselves more diligently to preventing off-the-job accidents. We are all familiar with the song, "Enjoy Yourself — It's Later Than You Think!" My message to safety engineers is "Wake Up! It's Later Than You Think!"

COMING EVENTS

In the Field of Safety

Feb. 6-7, Philadelphia

Seventeenth Annual Philadelphia Regional Safety Conference and Exhibit. (Bellevue-Stratford Hotel). Walter W. Matthews, managing director, Philadelphia Safety Council, 17th and Sansom Sts., Philadelphia 3.

Feb. 20-22, Urbana, Ill.

Thirty-seventh Annual Illinois Conference on Highway Engineering. William S. Pollard, Jr., College of Engineering, University of Illinois, Urbana, Ill.

Mar. 4-6, Birmingham, Ala.

Twelfth Annual Southern Safety Conference and Exposition. (Tutwiler Hotel). Braxton B. Carr, executive secretary, Southern Safety Conference, 2120 First Ave. North, Birmingham 3, Ala.

Mar. 19-20, Boston

Thirtieth Annual Safety Conference and Exposition, Edgar F. Copell, president, Massachusetts Safety Council, 31 State St., Boston 9, Mass.

Apr. 3-6, New York

Twenty-first Annual Greater New York Safety Convention and Exposition. (Hotel Statler). Paul F. Stricker, executive vice-president, Greater New York Safety Council, 60 E. 42nd St., New York 17.

Apr. 10-12, Columbus, O.

Twenty-first All Ohio Safety Congress and Exhibit. (Neil House). James H. Fluker, Superintendent, Division of Safety and Hygiene, Industrial Commission of Ohio, Columbus 15, Ohio.

Apr. 18-20, Tulsa, Okla.

Annual Statewide Safety Conference. (Mayo Hotel). Glenn V. Carmichael, manager, Oklahoma State Safety Council, Oklahoma City, Okla.

Apr. 19-20, Louisville, Ky.

Annual Kentucky State-wide Safety Conference. (Kentucky Hotel). Estel Hack, managing director, Louisville Safety Council, 214 Speed Bldg., Louisville, Ky.

Apr. 19-21, Kansas City, Mo.

Central States Safety Congress. George M. Burns, director, Kansas City Safety Council, 419 Dwight Bldg., Kansas City 6, Mo.

Apr. 23-24, Toronto, Ont.

Industrial Accident Prevention Associations, Annual Convention. (Royal

York Hotel). R. G. D. Anderson, general manager, IAPA, 600 Bay St., Toronto 2, Ont.

Apr. 23-26, Pittsburgh, Pa.

Twenty-sixth Annual Western Pennsylvania Safety Conference and Exhibit. (William Penn Hotel). Harry H. Brainerd, executive manager, Western Pennsylvania Safety Council, 605 Park Bldg., Pittsburgh 22, Pa.

Apr. 26, New Haven, Conn.

Connecticut Safety Society, Annual Conference. Donald H. Ackley, c/o G and O Manufacturing Co., New Haven, Conn. P.O. Box 1860.

May 9, Bethlehem, Pa.

Twenty-fourth Annual Eastern Pennsylvania Safety Conference. Harry C. Woods, executive secretary, Lehigh Valley Safety Council, 602 East Third St., Bethlehem, Pa.

May 14-16, Syracuse, N. Y.

Central New York Safety Conference and Exposition. (Hotel Syracuse). Walter L. Fox, executive secretary, Safety Division, Syracuse Chamber of Commerce, 351 S. Warren St., Syracuse, N. Y.

May 16-18, Winston-Salem, N. C.

Twenty-first Annual North Carolina Statewide Industrial Safety Conference. (Robert E. Lee Hotel.) H. S. Baucom, safety director, North Carolina Industrial Commission, Raleigh, N. C.

May 17-18, Duluth, Minn.

Twenty-seventh Annual Conference, Lake Superior Mines Safety Council. (Hotel Duluth). John A. Johnson, chief, Accident Prevention and Health Division, Region V, U. S. Bureau of Mines, 18 Federal Bldg., Duluth 2, Minn.

May 24-26, Norfolk, Va.

Seventeenth Annual Virginia Statewide Safety Conference. William M. Meyers, executive secretary, Richmond Safety Council, Allison Bldg., Richmond 19, Va.

June 4-7, Chicago

Twenty-eighth Annual Midwest Safety Conference. (Congress Hotel). Joseph F. Stech, manager, Greater Chicago Safety Council, 10 N. Clark St., Chicago 2.

June 21-23, Salt Lake City

Thirteenth Annual Western States Safety Conference. Clarence Williams, executive director, Utah Safety Council, State Capitol Bldg., Salt Lake City, Utah.

Oct. 8-12, Chicago

Thirty-ninth National Safety Conference and Exposition. (Stevens Hotel). R. L. Forney, general secretary, National Safety Council, 425 N. Michigan Ave., Chicago 11.

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Study X-Ray Development For Military Use

WARTIME experience revealed the need for good field X-ray equipment and led to a program at the National Bureau of Standards to coordinate the development of field X-ray components for the Research and Development Branch of the Surgeon General's Office. Ordinary civilian hospital X-ray apparatus is not suitable for field service: it is too heavy and bulky, and not rugged enough to withstand military use.

Field equipment should combine ruggedness with light weight, using standardized components and as few separate parts as possible. These features must be embodied in apparatus which is easily assembled, simple to operate, and flexible enough to be used for diagnostic work under a wide variety of conditions. It should provide for fluoroscopic examinations as well as radiographic work with permanent film records.

The X-ray development program is aimed at obtaining suitable equipment for any future emergency and there has been a continuing effort to translate the general military requirements into specific terms. At the request of the Army, the National Bureau of Standards began work on the initial phases of the program, in which research consultants, X-ray manufacturers, and Army roentgenologists, as well as the Bureau, combined their efforts.

Equipment being developed by General Electric is intended for more or less fixed hospitals, and it may be used without the fluoroscopic components in land-force evacuation hospitals, aboard ship, and in overseas base hospitals. All of the major professional requirements for fixed X-ray installations are provided for, but the new designs differ from conventional ones in several ways.

A novel engineering approach was adopted to reduce size and weight without sacrificing strength

or function. Besides omitting functionless frills, the design distributes the structural metal to give highest strength for a given weight. Basic structures are fabricated of standard sheet metal, either aluminum or steel. The use of aluminum lightens the entire assembly and simplifies the packaging problem. A "building block" scheme has been followed so that certain components can be omitted, leaving lighter and simpler units for use in mobile installations.

The 100-peak-kilovolt, 100-milliampere, full-wave generator uses sulfur hexafluoride gas as its insulating medium. This is a radical departure from present practice of using oil insulation for high-voltage units of this class, but it has many advantages in military use. Sulfur hexafluoride is nonflamma-

ble, tasteless, odorless, and non-toxic; its density is more than five times that of air. Slight contamination of the gas with air does not seriously reduce its insulating properties, whereas contamination of oil insulation is a much more serious problem. The use of gas as insulation also means a large saving in weight and much easier handling.

The generator unit employs rectifier tubes of entirely new design in which the anode structure extends to the outside of the envelope in such a way as to provide increased strength. The glass envelope is corrugated to give the necessary voltage creepage path in a shorter-than-usual tube. The tubes are further protected by shock mounting at the base of the transformer so that they can be shipped in place in the generator. If any of them should fail, the unit can be operated half-wave or self-rectified. Tilt table, tube stand,

—To page 92

Cartoon Background for Speaker



H. O. Sprinkle, manager of operations, Monongahela Power Company, addresses the semi-annual Conference of Superintendents and Foremen of the Constructors Association of Western Pennsylvania at their recent Fall dinner meeting in Pittsburgh. The backdrop is a huge cartoon depicting some contracting foibles. Mr. Sprinkle emphasized the importance of a planned accident prevention program, with full management participation, and of job briefing by foremen on anticipated hazards before starting each project.

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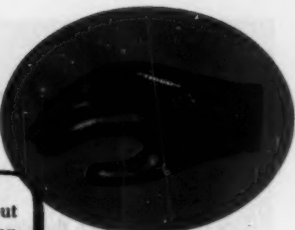
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Our Aging Plants

(From page 20)

skids or dollies which the elevator operator can push on or off or to provide the elevator operator with a motorized hand truck for handling standard skids or pallets. Only the load waits in these two systems.

Floor Strength

Elevators bring up the question of floor strength. There is usually ample floor capacity on ground floors to carry safely almost any type of industrial truck and its load. In extending their operation to upper floors of buildings, the question of adequate floor capacity arises. Since building construction varies widely, it is practically impossible to make recommendations for safe practice without a detailed study of the plant.

An approximate weight of trucks that may be operated safely on a given floor can be indicated by a simple study. Tests made by Yale & Towne's materials handling manufacturing divisions show that industrial trucks impose a dynamic load on the floor of about 25 per cent more than the static weight of the loaded truck. Such test results were obtained in our Materials Handling Testing Laboratories by using measurements on the structure and special test setups.

Based on these data, a safety factor of 50 per cent over static load is advised in computations for dynamic floor loading. This means a safety factor of 1.5. However, it is only one of two factors to consider. An industrial truck exerts its weight for all intents and purposes on a single point. Although the load is actually spread over the wheelbase and the tread of the tires, this is a relatively small area compared to the floor area. This concentrated load produces a bending moment approximately double that produced

by a uniform load on the beam structure of the floor. In test, the bending stress actually was increased only 85 per cent so that a safety factor of two is more than ample.

Combining these two safety factors makes an over-all safety factor of three to one for stresses in the floor slab that are imposed by a truck in operation.

The next question is how much floor area is devoted to carrying the weight of the loaded truck. This is usually the aisle area. If the total area of the aisle is multiplied by the capacity of the floor, the total capacity is obtained. Thus a 10-foot aisle, 20 feet long with a capacity of 250 pounds per square foot, would have a total capacity of 10 times 20 times 250, or 50,000 pounds. Dividing this number by three (the safety factor), the permissible loaded weight of trucks would be 16,000.

If two or more trucks could pass each other over this area, their combined loaded weight could not exceed the total 16,000. This point is very important, particularly around elevators, and should be remembered when reinforcing old plants. In addition, the area around elevators usually gets more than its share of traffic, and the fatigue load is liable to be greater. An additional safety factor should therefore be incorporated into the floors near elevators.

These calculations are made for concrete slab floors which, according to architects, are one of the more desirable types for buildings used to support industrial trucks. If other types are used, particularly wood, wheel loading studies may be necessary, since only a few boards or planks may receive the entire load.

If, however, a wooden or similar type of floor will easily support a uniformly distributed load

of the magnitude desired, some simple device like steel plates will often serve to disseminate the concentrated load of the wheels over several planks or boards.

When computations indicate that the maximum capacity of the floor is being approached, a competent construction engineer should make a further study. If there is a generous safety factor, no further effort is usually necessary.

A good example of how the major objectives of the handling problem can be undertaken by the physical reorganization of an old plant is the project Yale & Towne is undertaking at its Stamford Division.

In the Stamford plant we are confronted with the consequences of venerability. The first building was erected in 1868, and since then, additions were made until 1928. The plant is now a series of six-story buildings, linked together in the form of a huge "L" sprawled over a 29-acre site. Inside this "L" of buildings, on a center quadrangle, are miscellaneous buildings for metal processing, woodworking, power, shipping, and receiving. Production has in the past consisted of specialized operations for each product regardless of where the product had to travel—from building to building, or from shop to shop—in the process.

The Stamford general manager is eliminating this method of manufacture and in the new procedure each of the six floors will have a continuous production system based on these classifications of product:

Raw material brought into these floors—and in this case, it consists of material upon which primary operations have been completed in foundries and press shops—will go through a one-floor cycle of secondary operations. Each floor will have four similar areas: an area for secondary machining operations; a storage area for machined parts; an assembly area; and a packaging area.

Production is planned to take

place on a straight line system. Parts will be mechanically handled on belt and hangar conveyors, and monorail systems as well as mobile equipment such as hand trucks, motorized hand trucks, and lift trucks.

Over-all, the Stamford Division is consolidating its present 92 departments scattered over the entire plant into 44 locations in the "L" of buildings. Each of the six floors, in effect, will be a single-story unified operation for a group of related products. The present indications are that a movement economy of about 50 per cent will be achieved.

Where a plant must use several multi-story buildings additional handling headaches are often introduced. Too often, in the past, these buildings were not connected, and material sometimes has to proceed from the fifth floor of one building to the fifth floor of the next via an arduous trip down an elevator across a roadway and up another elevator. There have been some interesting methods devised to correct this evil.

Floors between the buildings can be connected with bridges which serve as truck runways. This will eliminate the tedious elevator trip and will speed handling of materials from building to building as well as leaving the elevators free for other work. If there is bulk material to be handled, a bulk conveyor, of the screw, vacuum, or blower type, can be used. For handling cartons, pallets, and other uniform loads, a tray type or gravity roller conveyor has been found successful. Often maximum economy is achieved by complementing a truck bridge and runway with a conveyor.

An ingenious idea for connecting two multi-story buildings was developed by a large paper box company. This manufacturer had two buildings that were separated by a gap of 10 feet, although for reasons of "unifying" the property the outer walls had been connected. Practically all inter-floor transportation was inter-building transportation. Material went down in one elevator and up in the other. There were two small elevators in one of the buildings, a six-story affair which served as



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the factory, and old elevator in the six-story adjacent warehouse. The two elevator shafts in the factory were located in the center of the building, taking up valuable production space, and were not wholly adequate to handle the flow of materials from floor to floor.

Management realized the prohibitive cost of this antiquated operation and arranged for an elevator company to make a survey. The engineers recommended the placing of an elevator shaft between the two buildings for the installation of a modern freight elevator and also a passenger elevator. A great improvement in the flow of materials resulted when the plan was put into effect.

When installing the new elevators, the difference in the elevation between floor levels in the two adjacent plants was a special problem. This was solved by using elevators which have doors on two sides. The new elevator takes its load on the fourth floor of the manufacturing building, then goes up two feet and discharges the material in the warehouse building for distribution to stock.

Where old, one-story plants are separated by a wide open area, it has often been found that roofing the area will provide additional warehouse space in addition to improving efficiency of operation. Although the yard may have been used for storage previously, orderliness and good housekeeping are easier to maintain when the area is covered.

Two factors that most frequently govern the modernizing of any production methods are the existing set-up and the amount you can spend to improve it. Other factors are the engineering imagination and ingenuity available—either in your own organization or the consulting engineers—and how much free rein it's given.

Remember, no old plant is absolutely hopeless. It's the technological methods, not the age of the building, that really determine the modernity of any plant.

The Safety Library

Books, Pamphlets and Periodicals of Interest to Safety Men

Industrial Safety

Industrial Accident Prevention. By H. W. Heinrich. Published by McGraw-Hill Book Company, New York, 1950; 470 p.; price \$5.00.

The stature achieved by the two previous editions of Mr. Heinrich's book naturally makes the third of considerable interest in the safety field.

The third edition, like the others, is rich in case histories, anecdotes, examples—the type of thing that can only come out of a wide experience with the safety problems of industry.

The book itself is a readable volume on good paper, impressive and open. It suffers from retention of some of the poor half-tones from the previous edition.

Industrial Accident Prevention contains perhaps the best and most lucid discussion of the philosophy of safety now in print. Mr. Heinrich is a master of exposition, and for persons new to the field of accident prevention his book will prove invaluable.

The book does not correct the weaknesses of organization and emphasis in its predecessors. The new volume, apparently to fill the omissions of the second edition, sets up chapters on motor vehicles, personal protective devices, accident analysis and "selection of remedy," but gives some of them only summary treatment.

The discussion of medical service is brief, and chiefly in terms of small plant needs, whereas the subject of industrial safety organization is in terms of large-scale operations. The sketchy nature of these new sections is perhaps testimony to the fact that the scope of accident prevention work has widened greatly since Mr. Heinrich started making his contributions to it. A writer must either

become an encyclopedist, or restrict a single volume to fewer aspects of safety.

Mr. Heinrich passes quickly over industrial psychology and the problems of personal motivation of employees, despite the importance of these subjects in the control of unsafe practices and of their current emphasis in the safety work of today.

One can regret, too, some of the sweeping generalizations (including the 4-to-1 ratio) unsupported by data which can be examined and evaluated by the reader himself.

Both beginners and experts in industrial safety, particularly those who have not formerly owned a Heinrich, will find the book a useful source of information and of practical applications.

Kent W. Francis

BOOKS AND PAMPHLETS Chemicals

Styrene Monomer. Published by Manufacturing Chemists' Association, 246 Woodward Building, Washington 5, D. C. 1950. 14 p. Price 20¢ (SD-37)

National Defense

Disaster Control. Reprint from American Machinist. Nov. 13, 1950. p127-166. Available from McGraw-Hill, 330 West 42nd St., New York 18, N. Y. Single copy free.

Principles of Plant Protection. Published by Munitions Board. 1950. 24p. For sale by the Superintendent of Documents, Washington 25, D. C. Price 15¢ (Catalog No. D3.2:p69)

Survival Under Atomic Attack. Published by National Security Resources Board, 1950. 31p. For sale by the Superintendent of Documents, Washington 25, D. C. Price 10¢ (NSRB-Doc. 130)

Service Industries

Accident Hazards and Costs in The Service Industries. Published by Workmens' Compensation Board, 80 Center St., New York 13, N. Y. 1950. 93p. Free (Bulletin No. 5)

Tanks

Cleaning Petroleum Storage Tanks. 2nd edition. Published by American Petroleum Institute, 50 West 50th St., New York 20, N. Y. 1950. 14p. Price 75¢ (Accident Prevention Manual No. 1 B)

Workmens' Compensation

Proceedings of the National Conference on Workmens' Compensation and Rehabilitation. March 1950. Published by U. S. Bureau of Labor Standards. 119p. For sale by the Superintendent of Documents, Washington 25, D. C. Price 30¢ (Bulletin No. 122)

State Workmens' Compensation Laws as of September 1950. Published by U. S. Bureau of Labor Standards. 1950. 47p. For sale by the Superintendent of Documents, Washington 25, D. C. Price 20¢.

MAGAZINE ARTICLES

Accident Statistics

Work Injuries in the United States, 1949. (In Monthly Labor Review, Oct. 1950, p.478)

Work Injury Rate in Reverse: Accident Rate Increases. (In Labor Information Bulletin, Nov. 1950, p.13.)

Aeronautics

Coordinated Crash Fire Control. (In National Fire Protection Quarterly, Oct. 1950, p.137)

Construction

Extra Precautions Make Super-Safe Job. By Robert L. Moore. (In Construction Methods and Equipment, Nov. 1950 p.45)

Fire Protection

Fire Protection on a Modern U. S. Passenger Ship. By K. H. Wiley. (In National Fire Protection Quarterly, Oct. 1950, p.123)

Health

Toxicology and Metabolic Effects of Fluorine-Containing Compounds. By Dr. Joseph Larnier. (In Industrial Medicine and Surgery, Nov. 1950, p.335)

—To page 102

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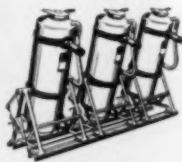
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They Hear Themselves Think

THE EMPLOYEE'S voice is the key element of a new safety educational technique developed by the Consumers Cooperative Association, Kansas City, Mo.

Participants in plant and departmental safety meetings hear play-backs of wire recordings of their own discussions. Workers also hear discussions held in other installations, receive challenges to safety competition in oral form, and pass along their own ideas and suggestions to workers they've never seen.

The Association's safety department is concerned with accident prevention in plants in many states and cities. There are petroleum, general manufacturing, warehousing and terminal operations. The typical installation is small, and the distances between them are great.

The wire recorder has provided a means for stimulating employee participation in safety work and

arousing and maintaining interest. The basic technique used is this:

The recording machine is taken by a safety department representative to an installation. A meeting is held on some aspect of accident prevention involving the manager, the safety committee, or all employees. The material which is of general interest and applicability is recorded. This may be discussions of lifting, eye protection, respiratory equipment, fire prevention, fire fighting or any other topic of general interest.

After the discussion, the recording is played back to the participants. A challenge to competition with other plants may be added. The recording is then taken to another plant of a similar type in another community.

There it is played to a group meeting of employees. These men's interest is heightened by the fact that they are hearing down-to-earth comment by workers like them-

selves working on similar operations. There is no sense that they are being preached at by somebody in the "front office."

At this meeting also, the discussion is recorded, played back, and then forwarded on to another installation. In this way, a complete circle of plants is maintained, each adding something new to the ideas passed on from others, and in turn forwarding its ideas along with those it received.

J. Lauren Shopen, safety director of the Association, comments on this program as follows:

"We have been using this method for some time, and we believe it to be one of the most effective ways of disseminating safety information and creating safety interest among supervisors and employees. We are convinced that such a program, if consistently used and its use planned, can lead to lower frequency rates."

Shut-Down Compressor Was Still Dangerous

The maintenance superintendent of a large plant in Tennessee, a man known for his diligence in teaching safety to his crew, remarked to two of his men, who were with him at the time, that the belts driving a compressor were too tight. This was a multiple V-belt drive.

The superintendent shut the compressor down and then took hold of the belts with both hands to demonstrate that they were too tight. This movement of the belts caused the pressure remaining in the cylinder to kick the wheel over, drawing both his hands under the belts. The cylinder discharged and then rolled back, releasing his hands. He suffered amputation of the left index finger, right middle finger, severe lacerations of the right index finger and severe laceration of the right ring finger which, at the time of reporting, looked as though it might have to be amputated.

This, it is pointed out, could happen with many types of pressure machines.



By means of a wire recorder the safety program of the Consumers Cooperative Association is carried to members at distant points. At the left of the picture is J. Lauren Shopen, safety director for the association; at the right, Glen Hamous, manager of the association's feed mill at Enid, Oklahoma.

THE HONOR ROLL

Records of operation exceeding 500,000 man-hours, or one year, if exposure exceeds 250,000 man-hours, without a disabling (lost-time) injury are invited.

American Zinc Co. of Illinois
Electrolytic Div., Monsanto, Ill.
—October 28, 1949, to October 17, 1950; 504,722 man-hours.

The Colorado Fuel and Iron Corp.
Pueblo, Colo.—133 days; 5,598,367 man-hours.

Combustion Engineering-Superheater, Inc.
Chattanooga Div.—Power Boiler Plant No. 1: 1,133,006 man-hours.

Heavy Sheet Iron Plant No 2:
511,067. Both records continuing as of December 11.

Commercial Solvents Corp.
Dixie Chemical Div., Sterlington, La.—September 12, 1949, to December 1, 1950; 787,451 man-hours; continuing.

Norton Co.
Worcester, Mass.—September 1950; 696,729 man-hours.

Pacific Telephone and Telegraph Co.
Oregon Area, District Plant Outside—April 8, 1949, to December 1, 1950; 2,235,870 man-hours; continuing.

Republic Steel Corp.
Youngstown District Blast Furnaces—356 days, 829,626 man-hours as of November 8.

Union Carbide and Carbon Corp.
Haynes Stellite Div., Kokomo, Ind.—July 26, 1947, to March 22, 1950; 7,407,010 man-hours. This is the best record yet reported for the foundry industry.

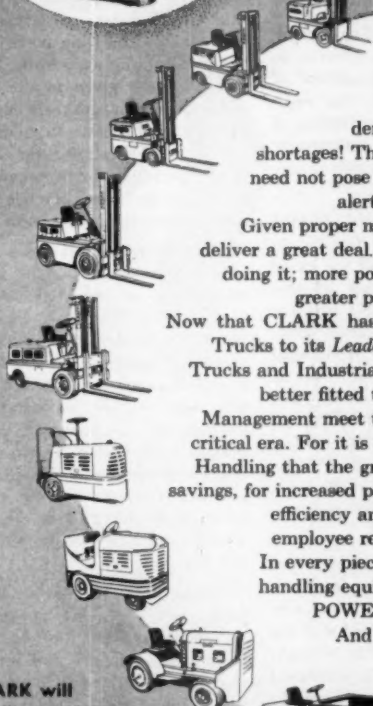
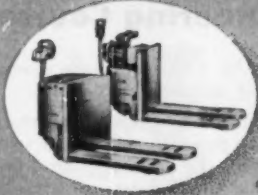
One night two safe-breakers entered a bank. One approached the safe, took off his shoes and socks, and started to turn the dial of the safe with his toes.

"What's the matter?" said his pal. "Let's open this thing and get out of here."

"Naw, it'll only take a minute longer and we'll drive them finger-print experts nuts."

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Outline Safety Integration Procedures in Engineering Courses

As a result of recommendations made by the Committee on Education of the President's Conference on Industrial Safety at its meeting in Washington last June, the University of Maryland offered the use of its College of Engineering for an experimental endeavor to determine a practical method of integrating safety into the engineering curricula. The Bureau of Labor Standards, U. S. Department of Labor, was requested to cooperate in this project.

The initial conferences revealed that it would not be feasible to integrate safety into all the existing engineering courses at this time. Therefore, for this first experimental year, integration activities were limited to the Mechanical Engineering curriculum, out of which 16 courses were selected. The experience gained in the selected courses of the Mechanical Engineering curriculum will be utilized to develop integration material later for the other engineering departments.

Freshman Year. It was felt that sometime during the freshman year the prospective engineer should become acquainted with the accident problem in this country. It was suggested that a practicing safety engineer address the freshmen concerning these problems in the freshman course in Introduction to Engineering, and at the same time point out the safety responsibilities and duties of professional engineers.

Also during the freshman year, safety will be integrated into the English courses, namely, composition and literature. This integration will take the form of themes relating to safety and will be coordinated with the current work of the freshman classes in English. Safety will also be integrated into the public speaking course. This integration will follow the pattern

of the work done in the composition and literature courses.

Sophomore Year. The integration procedure used for the sophomore year is an attempt to bring safety to the functional level. This was done by inserting material in the texts used for shop work. These insertions are given to the shop instructors to fit into their outlines as they deem best. In addition, sufficient material was developed to aid the instructor in integrating safety into the actual practice work done in the shops.

Manufacturing processes was chosen as an ideal course for safety integration, as the student engineer at this time first becomes familiar with the various methods of manufacturing. In this instance, a supplement was written to the text used, and the instructor will incorporate this material in his present outline. In addition, many references were given to nationally accepted standards with the expectation that the student engineer would also familiarize himself with this material.

Junior Year. The courses in the junior year of the Mechanical Engineering curriculum are basically theoretical in nature and little of the laboratory work permits of safety integration. The only possibility in this year is occasionally to provide a lecture with supplementary reading material so as to keep the student conscious of the safety problem as it will affect him in his future relations with industry.

Senior Year. The integration procedure for the senior year was through the medium of specific insertions in the rather specialized courses. Refrigeration and Air Conditioning, Design of Machine Elements, and Mechanical Engineering Practice, are examples of the more specialized courses for which specific insertions were

made. It was felt that integration should be made by textbook insertion, and also by supplementary material. Here again the student engineer is expected to familiarize himself with standards applicable to the particular course of study.

Present thinking at the University is that integration into engineering is the proper approach since it builds the safety factor into specific courses, and causes the student engineer to think of production, efficiency and safety simultaneously. In future revisions of engineering textbooks, it is hoped that safety procedures will be incorporated into the instructional material.

EDITOR'S NOTE: The accompanying article contains excerpts from a report on Safety Integration Procedures by Dean S. S. Steinberg, College of Engineering, University of Maryland. It was presented at the National Conference on Safety Education by Colleges and Universities, Cincinnati, Ohio, November 19-21, 1950.

Personals

Recalled to Service

ROBERT L. MEYER, associate editor of NATIONAL SAFETY NEWS and editor of the *Congress Transactions* has been recalled to military service. He reported at Camp Atterbury for assignment in December.

During World War II he served in the infantry in the European theater and continued in the reserve as first lieutenant.

Heads Pennsylvania R.R. Safety Work

J. T. WILLIAMS, formerly assistant to the Altoona Works manager, has been appointed superintendent of safety for the Pennsylvania Railroad with headquarters in Philadelphia. He succeeds Thomas H. Carrow who retired December 1, after more than 50 years of railroad service, of which more than 40 years have been devoted to safety work.

Mr. Williams, a native of Jersey City, N. J., was graduated from

the Stevens Institute of Technology in 1934. The following year he became a special apprentice on the railroad after having worked in various capacities while attending school. He advanced through numerous positions becoming assistant to the Altoona Works manager in May, 1947.

Mallalieu Retires From NBFU

W. E. MALLALIEU, the "grand old man of the fire insurance business," who has been associated with the National Board of Fire Underwriters for 50 years, and its general manager since 1910, retired from active duty with the National Board on December 31, 1950.

He is succeeded by LEWIS A. VINCENT, head of the National Board's Actuarial Bureau since 1945. Mr. Vincent, a West Point graduate, has been associated with the Board since 1929 and served as assistant to the general manager from 1942 to 1945.

Mr. Vincent was born in Meriden, Conn., in 1905, and attended Wesleyan University, Middletown, Conn., before his appointment to West Point. During the war he was advisory fire protection engineer and consultant to the War Department in Washington, D. C. Since 1945 he has been in charge of the National Board's Actuarial Bureau which gathers statistics on fire losses and fire insurance for member companies, state insurance departments and fire marshals.

Mr. Mallalieu was born in 1874 in Jersey City. In 1897 he was graduated from Stevens Institute of Technology as a mechanical engineer. After a brief experience in industry he joined the NBFU in 1900. For six years he served as an electrical inspector in the New York suburban field. In 1906 he was placed in charge of the Board's engineering department.

He has been influential in the promotion of better building construction. Under his direction successive editions of the Board's model building code have been published. This code has been the basis for the building laws in many U. S. cities. He developed the Board's "catastrophe plan," a pro-

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cedure designed to enable fire insurance companies to bring aid to stricken communities. The plan was used effectively after the Texas City explosion.

In both World Wars, Mr. Mallieu served as a dollar a year man, helping to safeguard the nation's military and naval establishments against fire. He is a past president of the National Fire Protection Association, serving in 1921 and 1922.

JOHN J. AHERN, director of fire protection and safety engineering at Illinois Institute of Technology, has been elected first president of the newly-organized Society of Fire Protection Engineers.

The organization is a new professional section of the National Fire Protection Association. Its object is to promote the professional standing of fire protection engineers, and will set national standards and determine qualifications.

Mr. Ahern received his bachelor's degree in fire protection engineering at Illinois Tech in 1935. Following graduation he worked as an engineer and investigator for several insurance companies. From 1942 to 1945 he was with the Ordnance department and organized and conducted war-training programs in explosives and industrial safety.

He joined the Illinois Tech staff in 1945 as professor and director of the Institute's department.

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Please submit complete resume of previous experience, education, personal data, salary received and expected, and reference in that order. All replies treated in confidence. Address Box 415, NATIONAL SAFETY NEWS.

HARRY H. RICHARDSON, chief safety engineer for the Standard Accident Insurance Company, completed 25 years of service with the company on November 16.

Mr. Richardson, who serves in the same capacity for the Planet Insurance Company, Standard's fire and marine affiliate, was presented with a service pin by E. A. Warnica, vice-president of the companies, and received a wrist watch from his associates in the safety engineering department.

GEORGE C. PETERS has been promoted by Jones & Laughlin Steel Corp. to the newly created position of safety engineer in the office of the supervisor of safety and welfare, Pittsburgh.

Mr. Peters was formerly assistant superintendent — safety and welfare at Aliquippa Works. He is a graduate of the University of Pittsburgh and was first employed at Aliquippa in 1928.

Company, Newark, N. J., died suddenly November 13 at Los Angeles where he was attending a meeting of the American Petroleum Institute.

Mr. Durfee was widely known in chemical, engineering and fire protection circles. He was graduated from Sheffield Scientific School, Yale University in 1918 with the degree of Ph.B. and received the degree of M.E. from the Yale Graduate School in 1920. Joining Pyrene as sales engineer in 1928, he had been vice-president in charge of engineering since 1948.

Interest in fire safety brought him membership on several committees of the National Fire Protection Association and chairmanship of the laboratories committee of the Fire Extinguisher Manufacturers Association. During World War II he served as consultant for the Office of Civilian Defense in the filming of two motion pictures on protection against incendiary bombing.

HUGO A. KLEMM

HUGO A. KLEMM, supervisor of industrial safety education for Safety and Sanitation Department, State of Wisconsin, Madison, died October 12 after a short illness.

Mr. Klemm was born at Newton, Manitowoc County, Wis., September 6, 1903. He was graduated from the University of Wisconsin in 1926 and became associated with the department in 1934. Since 1939 he had been secretary-treasurer of the Wisconsin Council of Safety.

HARRY W. DARR

HARRY W. DARR, former supervisor of safety for the Johnstown Plant of Bethlehem Steel Company, died at his home in Johnstown November 24 after a brief illness.

Prior to his retirement August 1, 1950, Mr. Darr had been associated with safety work at Bethlehem for 36 years. He was born in Somerset, Pa., March 26, 1881, and became assistant safety engineer at Johnstown in 1914. In 1928 he became supervisor of safety for the plant. For many years

OBITUARY

CHARLES G. DURFEE

CHARLES G. DURFEE, vice-president and member of the board of directors, Pyrene Manufacturing



he was a member of the Executive Committee of the Metals Section of the National Safety Council and was general chairman 1935-36.

An article, "Bigger Loads — Fewer Injuries," based on a paper presented at the Greater New York Safety Conference shortly before his retirement, was published in the October NATIONAL SAFETY NEWS.

The President's Medal

Awards made by the National Safety Council for resuscitation by the Prone Pressure Method

D. O. KIMMEL, JR., serviceman, Kentucky Utilities Co., Central City, Ky. — electric shock.

RICHARD D. GREISS, supervisor, Illinois Bell Telephone Co., Lombard, Ill. — drowning.

O. F. HINKLE, pumper, Venezuela Gulf Refining Co., Port LaCruz, Venezuela, and R. S. BENEDICT, Neville Island, Pa. — asphyxiation.

HENRY B. LIVELY, electrician, Bethlehem Steel Co., Steelton, Pa. — electric shock.

RUSSELL M. LOREY, electrician, Illinois Power Co., Decatur, Ill. — electric shock.

LOUIS O. GEROUX, former safety supervisor and service foreman (retired), Northwestern Bell Telephone Co., Forest Lake, Minn. — electric shock.

LEONARD ROSS AUCKLAND, garage mechanic, Hydro-Electric Power Commission of Ontario, Toronto — drowning.

KENNETH RIPLEY, line foreman, Illinois Power Co., Greenville, Ill. — electric shock.

GERALD PIQUETTE, asst. line foreman, Saguenay Electric Co., Roberval, Quebec — drowning.

ERNEST KENYON, machinist, International Aeronautical Corp., Toronto — drowning.

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Brazil Utilities Make Safety Gains

A 65 per cent reduction in employee accident rates since 1945 and an increasing number of top awards in annual contests of the Inter-American Safety Council of New York are announced for American & Foreign Power Company's public utility subsidiaries in Brazil.

Six of 19 subsidiaries won first-place honors in the 1949 contest, in which 80 Latin-American companies participated. The six subsidiaries are:

Cia. Fôrça e Luz Nordeste do Brasil, serving Natal and Maceió; Pernambuco Tramways & Power Co., Ltd., Recife; Cia. Fôrça e Luz de Minas Gerais, Belo Horizonte; Cia. Paulista de Fôrça e Luz, interior São Paulo; Cia. Fôrça e Luz do Paraná, Curitiba, and Cia. Carris Porto Alegrense, Porto Alegre. Their services include electric, street railway and telephone. They won in classifications from 500 to 1,000 employees to 1,000 to 3,000.

In presenting plaques, Capt. J. N. Parrott, executive manager of the Inter-American Safety Council, notes that Foreign Power's 19 Brazilian subsidiaries today have an accident frequency rate of only 36 per million man hours of work, compared with 104 in 1945. This is based on consolidated results of electric, street railway, telephone, gas and other operations.

For this record Capt. Parrott praises the teamwork of Brazilians and North Americans, and the co-operation of Brazil's national safety organization, Associação de Brasileira para Prevenção de Acidentes. He points out that the subsidiaries, which have 11,000 employees, serving 340 communities in ten states, also are contributing to public safety through educational programs for schools and other centers. Emphasis is placed on artificial respiration measures for electric shock cases.

Recalling his visit to Brazil in 1940, Capt. Parrott states that industry then was making but only sporadic attempts to promote safety. "Since that date intense safety activities have been developed. Fewer fatalities and a tremendous

reduction in the number of accidents are evidence that safety promotion is paying dividends in the saving of lives and dollars that cannot be measured."

The Brazilian subsidiaries were first entered in the contest in 1947, but failed to place, despite a sharp cut in accident rates. In 1948 Pernambuco Tramways was cited. Gains over the 1949 record are expected in the Safety Council's 1950 contest.

The safety program is directed by a committee at Cia. Auxiliar de Empresas Elétricas Brasileiras, Rio de Janeiro, administrative-service organization for Foreign Power's subsidiaries in Brazil. The committee, headed by Carl J. Snyder, vice president of Empresas Elétricas, and E. P. Matheson, safety director, works with management of the subsidiaries and with Brazil's national safety organization. Blended, in continuing research, are the best practices of all public service companies in Brazil and other countries.

For artificial respiration, the committee sponsors the Schafer method and periodic instructions and demonstrations are given.

Capt. Parrott points out that previously cinder and ash removal at thermal generating plants caused great numbers of accidents. This toll has been virtually eliminated through new safeguards the safety committee has developed. Similar safety gains, he adds, are being achieved on other operations of the subsidiaries.

President's Conference Committees to Meet

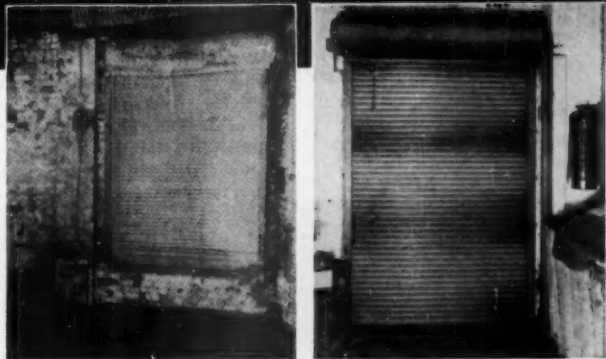
A two-day meeting of technical committee members of the President's Conference on Industrial Safety will be held in Washington May 8 and 9, according to an announcement by the coordinating committee of the Conference.

The eight technical committees will meet separately as well as jointly, and there will be consideration of progress in the holding of State or Governors' Conferences on Industrial Safety.

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Can We Measure Attitude?

By J. V. WAITS

THE word attitude is one of those terms which is used constantly by laymen as well as by the scientists. To each person using the word it has a different meaning; seldom is its use the same for any two individuals. Moreover, I dare say, few persons would care to try to define exactly what they meant in using the word "attitude."

I shall not attempt to give you a definition; I doubt that I could give you one which would satisfy you. I shall rather resort to a comparison to convey my idea. It has been said that motives and motivation are the power plant of the human animal. If this be so, then attitude is the valve through which motivation must operate. If motives correspond to the main-spring of a watch, then attitude is the escapement wheel thereof. Attitude sets the stage or the perimeter within which man operates.

To attempt to evaluate the importance of attitude is futile — it is the *sine qua non* which can make useful or useless any or all of the abilities or qualifications the individual may possess. There is no way to overestimate the importance of attitude in the total problem of vehicle operation.

If we grant this importance of attitude, it becomes vital to answer the question, "How can we measure attitude?" Or, we might just as well postulate another question, "Can attitude be measured?"

There is no absolute answer to either question. I can answer and defend a yes or a no, depending on how you define your terms. Primarily, the answer of yes or no revolves around the degree of ac-

curacy of measurement which you demand.

To illustrate, suppose you want to employ only men between 5 feet 8 inches and six feet in height. You could attain this goal with little trouble by employing the most modern equipment available on the market. And the error involved could be kept within 1/100 of an inch.

If you are thinking in any such terms when you talk about measuring attitude, you are doomed to disappointment. Neither can we measure attitude in terms of the accuracy of mental tests, knowledge, or even most aptitude tests.

The measurement of an individual's attitude even to a specific situation is at best crude indeed. It is fraught with many dangers and is subject to wide fluctuations even when we have the full cooperation of the person being tested. The errors of measurement are very large. As you well know, an employment situation is not conducive to the full cooperation of the testee. He wants a job and is certainly not going to help find out his attitude is bad if he can help it.

I know of no test or attitude scale that I would be willing to trust in such a situation — that is, where the subject is putting his best foot forward, and where the test must give individual prediction in the hands of the average employment office personnel.

Group Attitude

Turning now to group attitude we find a somewhat different answer. By and large, the attitude of a group can be assessed with a fair degree of accuracy. The conditions are: a well standardized scale tailor-made to fit the specific attitude in question; administration under optimal conditions; scale to be taken anonymously. Those filling out such a scale must be convinced that they cannot later be identified individually and that there is an honest desire to obtain their attitude. For this reason

THE AUTHOR: J. V. Waits is Principal Investigator, Institute for Research in Human Relations, Washington, D. C. This article was presented at the Joint Session of Transit and Commercial Vehicle Sections, 38th National Safety Congress.

it is usually best to have such measurements made by someone outside the immediate firm. Such group measurement has the deficiency that it is useless for individual remedial action, but it is invaluable in planning and management decisions.

We are presently engaged in a survey where attitude of personnel is a vital question and we are using a group attitude scale. While conclusive results are not yet available, enough data is at hand to indicate strongly that this type of attitude can be successfully measured.

A Complicated Problem

Let us turn now to another attitude problem. Attitude is not a constant; it is a variable. Moreover, an individual does not have an attitude, he has a whole constellation of them. His attitude is not good or bad. It may be good on some things and extremely bad on others. Not only is this true, but attitude shifts from day to day and, for that matter, from hour to hour. It may be one thing now and in the very next hour it

may be oriented through a full 180 degrees.

Attitude is affected by everything that happens to the man. His home life, his avocations, the treatment he receives from his fellow employees and his supervisors, the public, his sleep the night before, and a thousand other uncontrolled variables may enter into the situation.

If you employ a man six feet tall you have great assurance that his height will change little if any;

certainly he will never be 5 feet 8 inches. But the mere fact that a man has a certain attitude today is no assurance that he will have that attitude six months or six days from now when he is on your payroll. Much of what that attitude will be can be controlled by you and your management practices will have profound influence on whether the progression is toward good or bad.

So much for the theory of the
—To page 92



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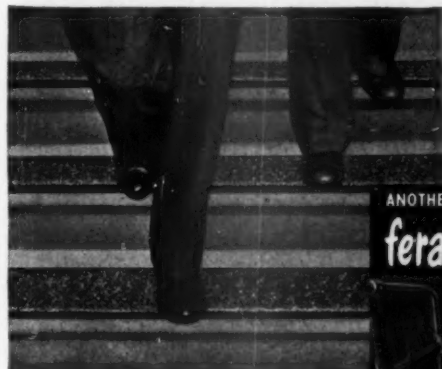
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National Safety News, January, 1951



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YOUR ALLY, THE DOCTOR

By C. SCOTT MCKINLEY, M.D.

WHAT WAS the origin of industrial medicine? We have seen that the safety department is a newcomer in industry, and that the safety engineer has been produced within industry. If he leaves safety activities, he will probably remain in industry.

The industrial medical department is likewise a newcomer in industry. However, when the physician comes to industry, he comes as a doctor; and if he leaves, he will probably return to the community as a physician. He comes as a member of a profession that has used as an ethical guide an oath dating back to Hippocrates, who lived 400 years before Christ.

Industrial medicine is a development of the last 150 years, the machine age; the industrial physician is a much more recent development; however, his code is based on standards over 2,000 years old; and his professional standards are guided by this code, his professional training, and his professional associations.

Although the industrial doctor is quite recent and industrial medicine as such has developed in the last 150 years, occupational diseases were known before the Christian era. Hippocrates himself some 400 years B.C. described diseases of metal workers, tailors, fishermen and others. Pliny the Elder (23-79 A. D.) described a protective mask to prevent inhalation of poisonous dusts and vapors. Galen (131-201), who was the founder of experimental physiology, had many references to occupational diseases.

Ramazzini (1633-1714) the "Father of Industrial Medicine" wrote on the diseases of tradesmen. This book contained an exhaustive review of the literature, and in it

he described about 100 different occupations and the special hazards of each.

Since its beginning medicine has been interested in occupation effects on man's health.

With the machine age and modern industry the industrial doctor, as well as the safety engineer, has had his frustrating periods. At times he was considered by members of his profession as a finger wrapper unable to "make a go" of private practice. Even as the safety engineer was to just stop accidents, the doctor was thought to just repair the results of trauma.

As the years have gone by, industry has not only realized that proper care of injuries is vital; but that proper pre-placement, checkup, and toxic exposure examinations are likewise vital and may greatly reduce the repair phase. In other words, the medical department is attempting to prevent and not just treat — a goal similar to that of the safety department.

During the early phases of safety and medical departments, the similarity of these goals was not as obvious; and because of less contact, misunderstandings could readily arise. The man with faulty vision running a crane and causing an accident is a concrete example of the obvious inter-relationship of safety and medicine in industry. Pre-placement examinations play a basic role in controlling accidents, injuries, and illnesses.

How can cooperation be obtained? There must be clear cut delineation of functions and responsibilities. If such clarification is not made, personnel from either department may transgress into areas of activity or responsibility that are not their's, and in so doing, cause misunderstanding and ill feeling. The organizational chart will vary in different industries; but as long as the personnel of the individual departments understands their responsibilities and functions, possibility of such misunderstandings is not great.

Basically, safety activity can be

THE AUTHOR: Dr. C. Scott McKinley is Medical Director, Bakelite Corporation, Bound Brook, N. J. This article has been condensed from a paper presented before the Twentieth Annual Convention of the Greater New York Safety Council.

broken into two major functions relating to (1) equipment and (2) personnel. Medical or health activity can likewise be divided into two major functions (1) personnel, (2) environment, viz, industrial hygiene, sanitation, food supply, etc.

I believe a major stumbling block to cooperation in the past has come from physicians not giving freely of information concerning medical conditions. For centuries the medical information concerning patients that physicians have obtained has been held in strict confidence. Today if you consult your personal physician, he has no right to divulge medical information without your approval.

With this background it is obvious that a physician obtaining medical information concerning employees will not desire, and actually is not at liberty, to divulge such information. It may be that the physician is so aware of the confidential nature of such information that he has not taken sufficient time and has not had sufficient patience in explaining this to either the safety engineer or other plant personnel.

When the physician learns of such conditions through medical channels, he would be passing this information as a doctor. If other lay people obtain information, then passage of the information by them would be little different than a discussion over the bridge table. They do not have the responsibility that the doctor has unless such information comes through an official capacity such as handling sickness insurance forms.

It might be added that in many cases an employee is desirous of having his "boss" or supervisor know what his trouble is and will freely supply such information himself or approve the doctor's supplying such information.

In direct contrast to the above is the supplying of information concerning compensable injuries or illnesses. As the employer is now held responsible for them, he is not only entitled to know but should know about all such cases. By employer, is meant the various representatives of management,

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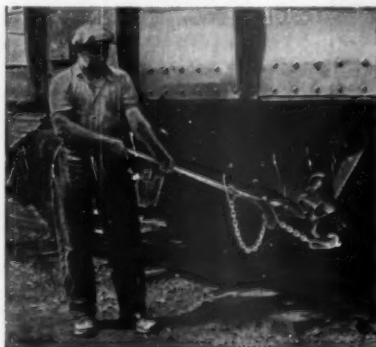
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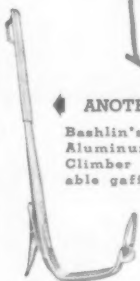


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I've Enjoyed the Work!

By SAMUEL R. BISHOP

WHEN I ATTENDED my first National Safety Congress as the representative of the American Institute of Architects, I felt like a lost sheep. I wandered around The Stevens Hotel to find the place where a lonely architect was supposed to fit in.

In scanning over the programs of sessions to be held by the 10,000 or more delegates and guests representing 32 distinct sections of American Industry, there was only one place where an architect could feel at home. That was in the Construction Section.

When the Institute became associated with the National Safety Council, it became necessary to appoint one of its members to represent them. Mr. Theodore Irving Coe asked me if I would accept appointment. Not knowing what the work was to be, and fearful that I would not represent the Institute to my satisfaction, I declined the appointment.

A few days later he wrote me again saying that it was the President's wish that I accept. I am very glad now that I did.

Upon receiving my official notification, I was made a member of the Executive Committee of the Construction Section and attached to the Engineering Committee. The first year I attended all the meetings of the committee which were held at the Engineers' Club in Philadelphia, and I was a good listener.

The second year I was asked to accept the chairmanship of the engineering committee, and the third year was re-elected.

During those two years we worked on safe practice pamphlets, and produced a series of 58 five-

minute safety talks for the foremen in the field, written in the language of the foreman as he would talk to his men; selecting the talk that was appropriate for the group he was to talk to.

These talks cover about every conceivable subject that is likely to arise on any construction operation where hazards and safety of the men are concerned. This series of talks bound in booklet form have gone through three printings and more than 7000 copies were sold the first year. They make good reading and would be most valuable to any architect's inspector or superintendent having charge of work in the field. They can be ordered from the National Safety Council.

After holding the chairmanship of the Engineering Committee for two years, I was elected vice-general chairman of the Construction Section, and this year nominated General Chairman, but I declined to serve, feeling that I could not spare the time from my office that the work would require, so I was re-elected vice chairman. I have found the work very interesting, and have worked with as fine a group of men as I could wish to meet.

The Construction Section is one of the most active and progressive sections in the Council, and is increasing in membership faster than any other section. Another piece of safety work that the Institute became identified with was the preparation and development of the American Standard Safety Code for the Construction Industry.

When the American Standards Association realized the need for such a code, it formed a nation wide committee and invited the American Institute of Architects and the National Safety Council to stand as sponsors. I was appointed to represent the Institute with Mr. Coe as alternate.

The committee was composed of representatives of 20 of the more prominent engineering, mechanical

THE AUTHOR: Samuel R. Bishop is Vice General Chairman, Construction Section, NSC, and representative of the American Institute of Architects. This article is an abstract of his report to the Institute.

and affiliated societies in the country, as well as representatives of manufacturers, insurance companies, the U. S. Department of Labor, the War Department and the Bureau of Standards.

The committee held its first meeting in Atlantic City, and the Institute's representative was elected chairman.

We were 8 to 10 years developing that code, but when completed and approved by every member of the committee, it was submitted to the American Standards Association, approved and published as the American Standard Safety Code for Building Construction.

So while the architect himself may not feel that safety on his operations is his direct responsibility, yet the Institute has made many valuable contributions to the work and has received full credit.

My purpose in submitting this report is to acquaint the members of the Institute with a piece of work in which it is engaged, but one which they hear very little about.

Safety Courses Offered By New York University

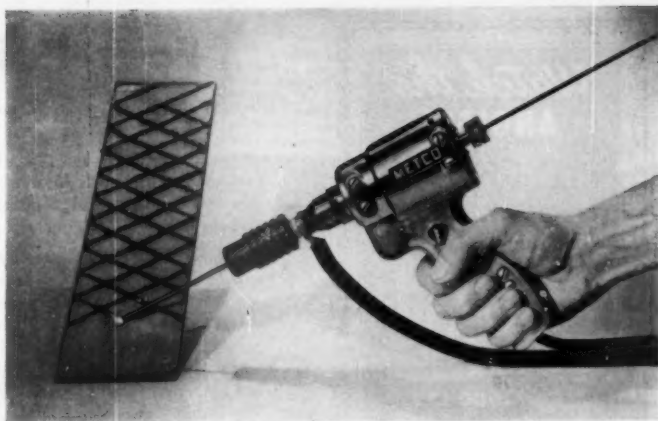
Courses in industrial and traffic safety are announced by the Center for Safety Education, Division of General Education, New York University, for the Spring Term beginning February 5. The expanded curriculum makes it possible for the students selecting a full program of ten courses to secure either a certificate in industrial safety or in traffic safety.

The following courses will be offered in the Spring term:

Required Courses: Safety Directors and Safety Engineers — Their Qualifications, Duties, and Responsibilities; Safety Organization: Values and Limitations; Management and Supervision in Accident Prevention; Industrial Hygiene and Occupational Diseases; Fire Prevention and Protection Inspection; Safety Supervision and Management in Commercial Vehicle Fleets.

Elective Course: Special Problems in Accident Prevention.

All courses are given in the evening at the New York University Faculty Club, 22 Washington Square North, New York.



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(From page 23)

courage action. It is felt that what some departments are doing along specific lines may be of inspiration or help to other departments.

Labor-Management Safety Committee: The labor-management committee includes the chief steward from each operating department and the safety staff. The safety director acts as chairman and a safety engineer as secretary. The committee meets monthly for discussing certain aspects of safety cooperation. This includes such items as accident-cause summaries, new developments in the safety or hygiene program or equipment, cooperative enterprises, etc. Suggestions concerning specific conditions considered unsafe are discussed only after they have been taken up with the immediate foreman without action or an answer.

Departmental Safety Committees: A departmental safety committee includes all of the department's general supervision. The department head acts as chairman and a safety engineer as secretary. The committee meets weekly for discussing current production schedules, problems and production hindrances or accidents occurring during the week, for assigning causes and taking action.

Workmen's Safety Committees: This type of committee has been discontinued in all except the Mining Department. It is an inspecting committee and includes the assistant general mine foreman and a safety engineer, with a foreman and two workmen in each mine. The assistant general mine foreman inspects each mine monthly with the respective committeemen of the mine. Corrective action is usually taken immediately upon recognizing a condition or practice which is considered to be unsafe; however, an occasional unusual condition is located which must be referred to an appropriate authority with the necessary knowledge or facts for making an equitable decision.

Safety Meetings: There are five general types of meetings designed to reach all employees:

1. Departmental supervisory meetings.
2. Departmental general meetings.
3. Sub-departmental meetings.
4. Crew meetings.
5. Planning conferences.

Departmental Supervisory Meetings: Most departments hold monthly meetings in which all supervisory personnel participate. In



Lining up for chow at the Fourth of July picnic.

these meetings, the department head discusses departmental and Company business which includes general company business, production schedules, personnel problems, mine or plant development and problems or accidents. Frequently audio-visual aids are used in these meetings.

Departmental General Meetings: These meetings are not held on a routine schedule except in the Mining Department where one is held each Spring and one each Fall. In most departments, this type meeting is held for a specific purpose; celebrating a no-accident record or to discuss a bad accident record for making improvements. At these meetings, talks are given by management and departmental representatives. Outside speakers are brought in on occasions. Frequently, employees are given some item to take home, such as a pound of coffee, a bag of sugar, a basket of groceries, or a ham. Recently, one department gave its employees a picnic.

Sub-Departmental Meetings: These are similar in nature and purpose to the departmental general meetings. They differ mainly in the type of program. They are usually held for giving the group special recognition for a specific achievement. They vary in character from a dinner meeting to an informal meeting for passing out coffee, baskets of groceries, hams, etc.

For some two years, sub-departmental divisions and the entire plant have been given a pound of coffee for each employee for operating a specified period of time without a disabling injury. The entire plant period is 30 calendar days and the periods for sub-departmental divisions vary from 60 to 270 calendar days, depending upon its size and the nature of its exposure. This award scheme was designed primarily to encourage a wholesome competitive spirit and as an instrument for higher supervision to make personal contacts with employees that would not otherwise be made.

Crew Meetings: These meetings are held at regular intervals—weekly, bi-weekly, or monthly on company time, depending upon the nature of the exposure or attitude

(From the "Northwestern Steel Safety News")

HERE'S HOW
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A **SCOTT AIR-PAK**—got its real test a short time ago when a pipe in the acid tank over in the Galvaniser frame broke. It was physically impossible for any human to get to the valve and shut the acid off without some kind of breathing device that would insure his complete safety. Foreman Ernie Zapf donned the new piece of equipment, put on the boots, rain coat and rubber gloves and stepped right in and shut the valve off. There was not a single injury as a result of the accident. The huge saving in production and wage losses which would have come as a result of acid damage can hardly be estimated. Ernie Zapf will testify that the job was simple and he came out unscathed.

A "HOT SPOT" for the use of this breathing device is in the transformer rooms of the Electric Furnace Department. These rooms are equipped with what is known as a CO₂ fire extinguishing system. Hence, with the CO₂ system discharging in the transformer room it is dangerous to enter the room without a guaranteed supply of air. The air mask is provided to be used for entering rooms when the CO₂ gas had displaced the air.

ERNE MORENO is shown in the picture wearing the air mask as he comes from the transformer room through the

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<input type="checkbox"/> Publicity	<input type="checkbox"/> Other _____
220 ENGINEERING.	
<input type="checkbox"/> Design/Layout	<input type="checkbox"/> Accident Investigation
<input type="checkbox"/> Fire Protection	<input type="checkbox"/> Organization Program
<input type="checkbox"/> Research	<input type="checkbox"/> Other _____
230 MAINTENANCE:	
<input type="checkbox"/> Building-Structure	<input type="checkbox"/> Equipment-Machinery
<input type="checkbox"/> Fire Hazard	<input type="checkbox"/> Housekeeping
<input type="checkbox"/> Material Handling	<input type="checkbox"/> Radio-Foreman
<input type="checkbox"/> Personal Protective	<input type="checkbox"/> Equipment-Clothing
<input type="checkbox"/> Inspection	<input type="checkbox"/> Service Facilities
<input type="checkbox"/> Personneling	<input type="checkbox"/> Working Conditions
<input type="checkbox"/> Working Practices	<input type="checkbox"/> Other _____
240 DISPOSITION OF RECOMMENDATION:	
<input type="checkbox"/> Employee	_____
<input type="checkbox"/> Foreman	_____
<input type="checkbox"/> Superintendent	_____
<input type="checkbox"/> Other	_____
400 AUTHORITY FOR SERVICE:	
<input type="checkbox"/> Code or Law	_____
<input type="checkbox"/> Requested	_____
<input type="checkbox"/> Volunteered	_____
<input type="checkbox"/> Other	_____
Remarks:	
_____ _____ _____ _____ _____	
Noted	Date
Form 604	

Safety service, showing front and reverse sides of a sheet from the safety and hygiene notebook.

In addition to the crew meetings, the Mining Department has blackboards in each mine change house, one for day crew, one for evening crew and the third for the night crew. Any workman noting a condition which he considers to be unsafe on his shift can write it on the board any time during the week, in addition to reporting it to his foreman. The notation stays there until the condition has been corrected. The mine foreman, as well as the shift foreman or crew foreman, try to correct conditions promptly.

person who is responsible for any phase of the job. One person is designated to be in charge of the entire job on each shift and any minor change deemed necessary must be cleared through this person before it is initiated.

Employee Training: Although there is no formal company-wide training setup, there is a sincere effort to see that each employee is properly introduced to the company, given proper job instructions, and is followed up to see that he has a reasonable working knowledge of the instructions. The new employee's training begins at the employment office where a history of his employment and experience is recorded for passing on to the one who will supervise his work. The company's general policies and practices as they concern him are explained.

In the Mining Department, his first contact is with the department head who spends from one to two hours trying to orient his attitude toward the company, department and the employees with whom he will work. Then for about three weeks he is placed under a training foreman who teaches him safety standards, first aid, and job performance in class room and under normal working conditions.

At the completion of the training period, he is given written and performance tests for judging his attitude and ability to absorb in-

structions and training. If this training shows him to be able and willing to cooperate and do the job, he is then given a certificate of achievement and assigned to a labor crew where he will work until promoted. The training foreman checks him for a period of time to observe his progress and to observe the foremanship of his supervisor.

When an employee is placed on certain jobs which require special skill in the use of tools or the operation of equipment, he is examined as to his knowledge and skill and given a certificate of competence if the examination is passed.

Supervisory Training: Training conferences are held occasionally as a clinic on foremanship for the purpose of reviewing the principles of good foremanship and to encourage indicated improvements. Foremen have been grouped in various ways for these conferences, depending upon the nature and scope of the training. In some they have been grouped for their own convenience, in some they have been grouped by levels of authority, and in others along departmental lines. The conferences have been led by representatives of the State Department of Education, the U. S. Bureau of Mines, and the company safety department. Department heads usually attend the conferences for the help and inspiration they can give the foremen.

Increase of Staff

Safety Engineering: Prior to 1947, the safety department was a division of the personnel department and included a staff of two engineers and a part time secretary. During 1947, the management decided that its investment in safety engineering was spread too thin to be effective and plans were made for increasing the staff with young graduate engineers.

As engineers were being recruited and trained, new safety offices were being constructed and on July 1, 1949, the safety staff was separated from the personnel staff and made responsible to management, as a department of technical or

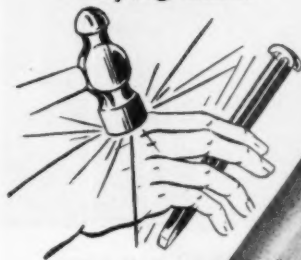
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professional safety engineering. At the present time the safety engineering staff includes six engineers and a secretary, with the following fields of engineering represented in the academic educational training of the engineers: chemical, civil, industrial and mining. They maintain membership in their respective professional societies, the American Society of Safety Engineers and/or American Industrial Hygiene Association.

In order to keep the program in balance, a "safety service card" was designed for the engineers to use as a notebook for recording a specific service rendered another department. The reverse side of the page is useful for analyzing services by departments, nature of service, disposition of findings and the reason for giving the service. Information is recorded on a wall sheet where data can be summarized, questions cross-compared and the actual services compared with the ideal.

The change in the status of the safety engineering department is prima-facie evidence of top management's faith in the principles of safety engineering as influential factors in providing progressive and efficient operations, as well as greater assurance of safe and healthful operations. It is calculated that the set-up will become increasingly helpful; to management for knowing improvements that should be made, to supervision in helping present required improvements to management, and to safety engineering in keeping it acquainted with management's current and long-term objectives.

Top Management's Policy

The safety program is top management's safety policy and any deviation from the basic objectives is cleared with management. Departments are directly responsible to management for carrying out the details of its program. On the other hand, the safety engineering department's responsibility for accident or health hazards does not end when they are located, analyzed and corrective action is recommended to the appropriate authority; its responsibility ends only when a problem is solved for the benefit of all concerned.

National Safety News, January, 1951

Dog Bite Problem Solved By Reno Post Office

Dog bites have ceased to be a problem with the Reno, Nevada, Post Office, according to Postmaster Peter Peterson. He believes that the same men are usually involved in dog bites and here is what they do about it, as told in the *Safety Bulletin* of the U. S. Department of Labor.

When they have a carrier who is bitten by a dog and seems to be afraid of dogs, they reassure him, wherever possible, to other work. One man now has been assigned to operate a vehicle so that he will not be exposed to neighborhood dogs.

Carriers in Reno are requested to report on all yards or houses that have noisy, growling, barking, unfriendly, or vicious dogs. This is to be done before the dog bites the postman. The Postmaster, if he knows the owner, telephones the owner and points out the danger of dog bites and the need for restraining the dog while the postman is in the area. In cases where the phone call appears ineffective, the Assistant Superintendent of Mails calls on the owner of the dog.

Asked whether he felt that this approach would be feasible and practical in larger post offices, Mr. Peterson answered that in his opinion it would be. Although the Postmaster or Superintendent of Mails might not have the time to do much personal calling, the larger post offices always have other supervisors who could do this, and some are already doing so.

In any event, less time is involved in such activity than there is in time out to obtain medical treatment, hospitalization, replacement of damaged clothing, arguments with the owners of the dog, and similar losses caused by dog bites.

A couple with a new baby and a toddler were listening to a television salesman enthuse over a new model "so simple a baby can turn it on."

That was the clincher for the husband, who remarked to his wife: "Guess we'd better wait until they make them more complicated."



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Eyes and Hands Are Safe



Prior to the adoption of goggles and high-cuffed plastic-coated gloves, Factory Stores, Cleveland, was averaging one disabling injury a month as the result of explosions in the 100 units where they sell pop by the bottle.

Last summer, following the adoption of the safety equipment, they sold as many as 1,033,920 bottles of pop in one month and report that they have yet to experience the first lost-time injury in handling bottled beverages.

The "pop safety kits," shown here, have been installed in 100 of the industrial canteens and cafeterias which they operate throughout the eastern half of the United States. Goggles and gloves are held in the specially designed wall pocket with prominent lettering which confronts the employee approaching the cooler.

Following introduction of this equipment, four explosions occurred in the handling of nearly



five million bottles. Although some employees had to be sold on using the equipment, they were convinced when one employee escaped injury when a bottle exploded in his hands when he was wearing the equipment for the first time.

No Burnt Fingers

Match books with the striking surface on the reverse side are slightly less convenient for the user but have an advantage from the standpoint of safety. During the past few years a company in Washington, D. C., operating cigarette vending machines has dispensed several million books of matches of this type bearing the

advertising of a laundry without having a single claim for burnt fingers.

"In our past experience, claims for burnt fingers usually accompany operations of this size when the customary book matches are dispensed," reports J. L. Deinisch, superintendent, Engineering and Inspection Division, New Amsterdam Casualty Company, Baltimore.

Survey Safety Practices Of Construction Companies

A review of safety practices of approximately 20 large engineering and building organizations holding membership in the National Constructors Association is being made at the present time, prior to the recommendation of a set of standard procedures for member companies engaged in the erection of chemical plants, oil refineries and steel mills.

Working with the cooperation of the Construction Section of the National Safety Council, the National Constructors Association is setting up a nation-wide program aimed specifically at reducing the frequency and severity of lost-time accidents on their jobs.

"Only through organized effort can we keep accidents to an absolute minimum," Mr. Pritchard said. "Our membership, representing many of the larger concerns in the industry, have pledged support to the program. Through a mutual exchange of information, we hope to establish standardized procedures and practices that will be beneficial for our employees, our clients and ourselves, by reducing accidents and saving lives."

F. R. Griffin, safety engineer for the Engineering & Construction Division of Koppers Company, Inc., Pittsburgh, has been elected chairman of the Association. A preliminary review of safety programs sponsored by member companies will be made by the committee in New York on January 9, 1951.

Costs of Radiation Protection

Providing adequate protection against radiation hazards is a major factor in both capital investment and operating expenses of the atomic energy program, according to the Eighth Annual Report to Congress of the Atomic Energy Commission. The report, quoted by *Nucleonics* for September 1950, cites some specific costs in the operation of a radiation-protection program.

For instance, Oak Ridge National Laboratory, a representative

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A DISASTER REPORT THE PAPERS MISSED



The newspapers told how the firemen of five towns and townships battled a blaze in the cork factory all weekend.

But they failed to report the basic facts of the disaster...

1 That the Watchman dozed off—as was his habit on long, dull weekends. "Nothing ever happened before", he said dazedly.

2 That management had been negligent about providing dependable supervision on weekends. Previously, a supervising employe had been paid overtime to return to the plant Saturday and Sunday to change the clock dial. But this practice had been discontinued.

The sad fact about this disaster was that it could have been avoided. Had the Watchman been supervised by a DETEX GUARDSMAN Watchclock, he never would have risked sleeping—because the GUARDSMAN is just as vigilant on weekends as it is during the week. It operates on continuous roll tape for as long as 96 hours, if necessary.

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atomic energy center, is spending \$407,000 a year on health physics service operations. Oak Ridge estimates that it costs, on the average, \$106 a year to equip a laboratory worker with protective clothing and personal radiation meters. Other costs include process equipment and installation, special transportation containers and methods, plant security, special utility equipment, and analytical control devices.

Your Ally, The Doctor

(From page 79)

such as safety personnel and foremen.

If all cases reporting to the medical department are separated according to their occupation or non-occupational nature, it is an easy matter for the medical department to supply the safety department with complete information concerning occupational conditions, including questionable cases and those which the employee alleges or strongly feels are a result of his work.

Since the injured employee first reports to the medical department, nearly all information concerning such injuries received by the safety department stems from the medical department. It is of vital importance that the safety department receive such information completely and promptly. Statements made at the time of first treatment concerning the accident may be of utmost importance.

They are apt to be spontaneous and uncolored. This may not be so even a few hours later, and by this time the first account may be quite valuable in determining the true cause of the accident.

In case of serious or multiple cases, medical department personnel may be completely occupied with treatment and emergency measures. At such times, prompt notification of safety personnel will allow them to go to the scene of the accident and make certain that hazards are controlled, and that good judgment is used in handling the emergency. Too often an employee will run the risk of sacrificing his own life to save equipment.

On many occasions workers being treated in the medical department will give tips or hints of unsafe conditions or practices. The passage of such information to the safety department may allow correction of the condition without causing the worker any embarrassment. We all know such situations do occur, and an excuse can always be found to check without stating that a complaint has been received and without mentioning names.

On other occasions the nurse or physician may hear complaints about safety rules or procedures. This is an excellent opportunity to point out their value.

The safety personnel may likewise hear complaints concerning medical department policies or procedures. Understanding and familiarity with the program will allow further explanation in a fashion which the medical depart-

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ment may not have opportunity to do.

The plant physician or nurse should participate in plant safety committee meetings. Such participation permits better understanding and correlation of medical causes for accidents with the medical effects of the injuries. The value of both safety and medical records will be appreciated. Guidance can be given in the proper placement of injured employees, and assistance in avoiding the pitfalls of improper placement — either to save an accident record or the lack of placement when it may be possible.

In very small plants and not so long ago in many large plants, little attempt was made to place injured employees. It was not simple to arrange for this placement; the physician, possibly only on a part time or on call basis, was afraid of losing control and not having an injury heal satisfactorily. The employer preferred to pay compensation rather than have a temporary "cripple" or "half a man" working for him.

Medically, we are satisfied that many injured men can continue gainful work, though perhaps not at their regular work, with a psychological advantage. They do not become used to sitting at home doing nothing and collecting compensation. The trend these days is to give such injured employees work, whenever possible, that they can do without adversely affecting the injury. Through experience in many cases it has become apparent that such a course of action has been beneficial to all concerned.

We must make sure, however, that there is work that the injured can do. Great harm can be done by keeping injured employees at work when there is no actual work for them to do; when they are just hidden somewhere in the plant. The employee himself, even though he may have been largely responsible for his injury, feels important in the attention and special consideration given him. He enjoys not working and still receiving his regular pay. As a consequence, symptomatic recovery may be greatly delayed. If he recovers, he may soon be back with a new injury or con-

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*Archives of Dermatology and Syphilology, April, 1942.

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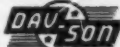
PLANT	DEPT.	DATE	CAUSE	INJURY	LOSS	OTHER
1. JANITORY	IS	1/24	SLIP	SKIN	2	0
2. ELECTRICAL	DEPT.	1/24	SLIP	SKIN	2	0
3. DEPT. OF	DEPT.	1/24	SLIP	SKIN	2	0
4. DEPT.	DEPT.	1/24	SLIP	SKIN	2	0
5. DEPT.	DEPT.	1/24	SLIP	SKIN	2	0
6. DEPT.	DEPT.	1/24	SLIP	SKIN	2	0
7. DEPT.	DEPT.	1/24	SLIP	SKIN	2	0
8. DEPT.	DEPT.	1/24	SLIP	SKIN	2	0
9. DEPT.	DEPT.	1/24	SLIP	SKIN	2	0
10. DEPT.	DEPT.	1/24	SLIP	SKIN	2	0
11. DEPT.	DEPT.	1/24	SLIP	SKIN	2	0
12. DEPT.	DEPT.	1/24	SLIP	SKIN	2	0
13. DEPT.	DEPT.	1/24	SLIP	SKIN	2	0
14. DEPT.	DEPT.	1/24	SLIP	SKIN	2	0
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PLANT						20
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dition requiring special consideration.

The other harm is in the form of lowered morale of fellow employees. If Joe can make as much money as they do for sitting doing nothing they begin to wonder why they should work so hard. They are dissatisfied, feeling that there is an unfairness even though it is swell for the "boss" to treat them so nicely when they are hurt. Soon Joe may have the company of other workers, who are injured and unable to work.

Safety and medical departments must realize that certain problems are joint problems and can be worked out satisfactorily only through cooperation in a joint attack. As in the case of placement of injured workers, there must be a mutual understanding of the aims desired. Both departments must also appreciate that at times problems must be worked out not only by their mutual cooperation but by cooperation with other departments in the plant. Again in placement problems, the personnel department will play an important role.

Can We Measure Attitude?

(From page 77)

situation. What can we do as a very practical solution? It seems to me that there are two things which we must do, and I shall list them very briefly.

1. The best measurement of attitude in the employment situation comes from a thorough interview by a competent interviewer — one which has been planned, one which follows a definite pattern, one which digs into the previous history of the individual to elicit the information upon which a skilled interviewer can base an estimate of attitude. If you have a test which you believe will measure attitude, go ahead and use it, but do so with your eyes wide open to the deficiencies and inadequacies which are inherent in the instrument.

2. Since attitude is a variable, it becomes vital that the employer so control his working conditions and situation as to obtain the very best condition attainable — the

one which will give him the highest of probabilities that a favorable attitude will be maintained among those whom he has employed. Certain it is that you cannot maintain the proper attitude among your men if you are in constant conflict with them. It is not within the scope of this paper to make specific recommendations, but it goes without saying that anything which can improve the conditions of your employees will be reflected in their attitude toward the company and toward their work.

Finally, I know of no field that promises higher dividends in the matter of efficiency for those of you who are engaged in vehicle operation than from a concentrated attack on the means of measuring and the influencing of attitude. No matter how much you as a group may spend, I can promise you that the amount will be a mere pittance compared to the returns you will receive.

Study X-Ray Development

(From page 62)

transformer, and control stand are packaged in two units, small enough to be transported on a one-ton military cargo trailer. These packing units are water-tight and will even float.

The lightweight transportable radiographic table being developed by the Kelley-Koett Manufacturing Company is for use in the forward areas of military activity. It is intended primarily for radiography but, with additional components, allows for horizontal fluoroscopy. Stretcher radiography of patients too badly injured to be moved to a table is also possible by swinging the tube unit to the rear of the table.

In conventional tables, the table top itself is of light construction to keep its X-ray absorption low and depends on a heavy frame to give it the required rigidity. The new table uses a lightweight frame, deriving rigidity from a layer of woven fiberglass cemented to the undersurface of the panel. Total weight of table and accessories is only about 250 pounds.

The 85-peak-kilovolt, 15-milliamper, portable X-ray unit with mid-ground tube-transformer-head, being developed by Westinghouse, has been made as lightweight as possible, without sacrifice of performance, through the use of new designs and materials. An initial model has been designed around a commercially available X-ray tube, but further reduction in size and weight of the tube head may be made if, as is expected, a tube of smaller size becomes available. The complete tube head will weigh only about 30 pounds.

Further space and weight saving are accomplished by using the space around the transformer leg, normally wasted, for a closed neoprene tube to serve as the expansion bellows required for operation over a wide range of temperatures and altitudes.

In addition to the development of the major components of field X-ray equipment, it has been necessary to consider several apparently minor, and yet critical, aspects. Shockproof cable bushings are commonly made in many different types and sizes. But for military use it is desirable to have a single type of terminal to simplify supply and maintenance problems. Detailed specifications are now being prepared by the National Bureau of Standards, after comprehensive studies of existing types, for a type of cable connector which will meet the needs of field use. Another problem is the proper planning for power sources for field X-ray equipment. All newly developed gasoline generators which might be used with X-ray equipment are being studied at the Bureau.

Technical supervision of the field X-ray development program has required the use of a wide range of facilities and trained personnel at the National Bureau of Standards. Complete tests of shockproof terminals, for example, have been carried out through the co-operative efforts of several specialized divisions of the Bureau. The characteristics of the different X-ray components can be carefully, quickly, and economically studied before they are sent on to the military services for field testing. Lat-



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er, detailed specifications will be drawn up for tooling and manufacture so that the various units can be placed into production by any qualified manufacturer on short notice.

A continuing review of X-ray equipment requirements, in the light of future technical developments and of military needs, would provide a sound basis for future plans and designs in this field, and such review is contemplated by the Bureau as part of a long-range program.

Industrial Safety Panel

(From page 55)

balance for an emergency run to the mill from the village, three miles away.

The doctor and the ambulance arrived about ten minutes later. After a preliminary examination, the doctor directed the removal of the injured man to the hospital.

It was then my duty to notify the employee's wife. If you have never had the experience of notifying a person, of an accident to a loved one and you are almost sure that the injuries will prove fatal, you don't know what a tough day in safety work really means.

To this day, I cannot recall just how I broke the news. The wife was quite young and they had only been married a short time. The employee was 29 years old and had only been with the company about six months. He died in the hospital the next afternoon of a broken back and severed spinal cord.

Every time I think of this accident, the details come back to me very vividly and I am sure that I will always remember my toughest day in safety work.

A Good Man Hurt

MR. RILEY:

My toughest day in safety work was the day I received the following accident report:

"Employee, foreman of Main-



tenance Department, was standing astride large gear that motivates the mud mixer. He had sent his helper to get him a replacement bolt for the gear housing.

"As he stood there waiting, another employee pressed the push button that started the machine.

"The foreman was thrown into the gears."

I don't think it necessary to enumerate the awful injuries this man suffered. Suffice it to say he was given a 100-1 chance to survive the night. (That accident occurred over 18 months ago; the man is alive and is doing very well considering his injuries.)

What made this my toughest day in safety work?

I knew the man personally. He had worked in the plant for 37 years and was one of the best and most conscientious employees ever to set foot on the job. He was a foreman and as such was responsible for the safety experience of his department.

Yet here he was, a mangled wreck of a human because he failed to observe a rule he had so often taught — *Lock out the control switch before working on any machine!*

He, a foreman, failed to observe his own teachings!

Frustration and sadness combined made this a truly tough day in safety — my toughest so far.

Time and Place

MR. SMITH:



This question is difficult to answer. Every day is "tough" where-in: (a) Disabling injuries occur; (b) We fail to correct or

make satisfactory progress in correcting known hazards or "hit a snag" in some other phases of our safety program.

Therefore, I will not be able to select the toughest day but will relate a "tough" one out of nearly 25 years experience in safety work. This particular day's tough experience embodied both "a" and "b."

The injury: Loss of three fingers on a power press. It goes without saying that this was "tough" for

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wear a

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In Canada—Safety Supply Company—Toronto

the injured and all of us involved. There is no point in dwelling on this.

The thing that jarred all of us was *where* and when it occurred.

Where: In a plant where no lost time accident had occurred for nearly three years, and with an accumulative of 2,300,000 man hours, for which a National Safety Council Distinguished Service to Safety Award had been received (but not as yet presented).

When: at 11:00 o'clock the day on which plans had been made to stop work at the Plant to permit time for the works manager to present the award.

That first day it looked like we had really "hit a snag" in one of the major phases of our safety program which is to give recognition for *meritorious safety performance* whenever we find it.

We all know how some foremen and others in management cross their fingers or rap on wood whenever they speak of a good safety record. This superstitious attitude is ridiculous but quite human.

To forestall the possibilities of this experience dampening the enthusiasm for certificates, plaques, etc., we immediately emphasized the fact that *good* and/or *excellent* safety records are reserves built up (money in the bank) for that purpose or "tough" dark day when that inevitable disabling injury occurs. Furthermore good and/or excellent safety records beget better records if we tell the employees involved how well they are doing and there is no better way of telling them than through the ceremonies connected with presenting certificates and plaques.

In the case mentioned here our ceremonies were a bit delayed, due to the accident, but took on greater significance. The accident-free period was really appreciated in view of the seriousness of the injury. We refused to be licked by the old fashioned philosophy that "talk about not having accidents and you are sure to have them."

We are still, and I hope always will be, giving recognition for "meritorious safety performance" and don't "cross our fingers or rap on wood" when we do it.

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Bulletin
579



"Speaking of Safety"

A new series of six training films, "Speaking of Safety," teaches foremen and supervisors how to talk effectively before groups. Material for the films was prepared by Dr. Irving J. Lee, professor, School of Speech, Northwestern University.

Film No. 1, *The Power of Speech*, points out some of the occasions when foremen and supervisors may be called upon to give a speech, explains the difference between formal and working speeches, and discusses the purpose of a speech. It then outlines the subjects to be discussed in the succeeding films.

Butterflies in Your Stomach, Film No. 2, describes stage fright, explains the physiological reactions that cause it, and shows how to overcome it.

Film No. 3, *The Key to Good Speaking*, outlines four methods of preparing a speech, points out the advantages and disadvantages of each, then indicates which method is recommended and why. How to prepare a typical safety speech by use of the recommended method is shown step by step.

Film No. 4, *On Your Feet*, tells how to stand, how to move around effectively and the reasons for doing so, what to do with the hands, where to look.

The subject of Film No. 5, *Now You're Talking*, is speech making itself; how loudly to talk, vocabulary, phrasing of ideas, attitude of the speaker and its relationship to successful speaking.

How to hold the attention of the audience from beginning to end is explained in Film No. 6, *Ring the Bell*. Pointers are given on breaking the ice, the value of demonstrations, scale models, films, graphs, charts, and so on.

The films are 35 mm sound-

slide, with 16-inch records, 33 1/3 rpm. The records are pressed for manual advancement on one side and for automatic advancement on the other. The films come in a sturdy leatherette case, with a leader's manual. The running time for each film is approximately 13 minutes.

Member prices: single set of six films, \$100.00; 2 to 9 sets, \$95.00 each; 10 or more sets, \$90.00 each.

Aren't People Funny?

A brand-new employee booklet, *Aren't People Funny?*, illustrates in an amusing way a number of common human foibles and faults which can lead to accidents.

The spotlight is turned on various types of characters — the playboy, the hot rod, the big shot, the show-off, and others — and shows in simple fashion the relationships between attitudes and behavior, especially unsafe behavior. In each case a few words of friendly common sense make the "moral" easy to take and easy to understand.

Aren't People Funny? can be distributed to employees in a number of ways — on the job, at safety meetings, as a payroll enclosure, as a special mailing to the worker's home. (His family will enjoy it — and perhaps learn from it — as much as he does.)

For prices and a sample copy, write the National Safety Council, Membership Department.

Data Sheet Sets

To accommodate the present set of Data Sheets, which number 177, and to provide for future expansion of the series, two large three-ring binders are now being sent to purchasers of complete sets. For easy reference, the Data Sheets are arranged alphabetically by title, and the binders are stamped A-L and M-Z.

Each Data Sheet is a concise, authoritative discussion on one specific safety subject. Additions are constantly being made to the list. Each Data Sheet appearing in the NATIONAL SAFETY NEWS is reprinted for inclusion in the set, and from time to time various Industrial Sections produce additional Data Sheets on specialized subjects.

Member price for the complete two-volume set is \$19.50.

New Safety Reprints

Four new Safety Reprints have recently been added to this series of Council publications for safety directors, safety engineers, supervisors, and foremen.

Safety Reprint General No. 13, *Counting the Savings*, a two-page article by G. Albert Hill from the NATIONAL SAFETY NEWS, explains the program of the Connecticut Highway Department, which experienced a substantial drop in employee accident costs as frequency came down.

Safety Reprints Mining No. 6, *Electric Blasting in Sinking Shafts*, and Mining No. 7, *Earthing System for Headgears*, are both reprinted from a 1950 report issued by the Prevention of Accidents Committee of the Transvaal Chamber of Mines, Johannesburg, South Africa. Each is illustrated with a diagram.

Safety Reprint Rubber No. 1 is an 8-page article from *Industrial Medicine*, June, 1948. Entitled *Medical Problems Encountered in the Manufacture of American-Made Rubber*, it discusses in some detail the ingredients known to cause or suspected of causing health problems. The authors are Rex H. Wilson, M.D., Glenn V. Hough, M.D., and William E. McCormick.

Member prices: General No. 13, Mining No. 6, and Mining No. 7, 1 to 9 copies, 15 cents each; 10 to 99, 11 cents each; 100 to 999, 7 cents each; 1,000 to 4,999, 6 cents each; Rubber No. 1 (eight pages), 1 to 9 copies, 25 cents each; 10 to 99, 21 cents each; 100 to 999, 16 cents each; 1,000 to 4,999, 12 cents each.

SAFETY

POSTERS



THE 1951 Directory of Occupational Safety Posters has been sent to members of the National Safety Council. It contains 744 miniature proofs of posters carried in stock throughout the year. Detailed information on a new plan for selecting your posters monthly is contained on pages 4 and 5 of the Directory. As outlined on page 4—first, choose your new posters

from those displayed on these pages; next, select other posters from the subjects shown in the Directory. Additional copies of the Directory are available at 50 cents each—write Membership Dept., N.S.C.

Previously, posters shown in the NATIONAL SAFETY NEWS included not only new posters, but also some that were shown in the Directory. Now, starting with this issue, only NEW posters are illustrated on these pages—posters produced for the first time this month. With the exception of the Jumbo poster (below, left), these posters will be available during the balance of 1951. We suggest you retain this copy of the NEWS and refer to these pages, as well as your Directory, in making monthly poster selections. Posters are in two or more colors.



9216-C 25 x 38

Above new "C" poster, issued monthly, is indicative of the other two color posters—shown in black and white on the following pages and in the 1951 Poster Directory.



JUMBO POSTER FOR FEBRUARY, 1951

The Jumbo poster, issued monthly, is designed for outdoor use and is available to members on annual subscription but is not stocked. Its actual size is 9' 11" by 11' 8".



9180-A 8 1/2 x 11 1/2

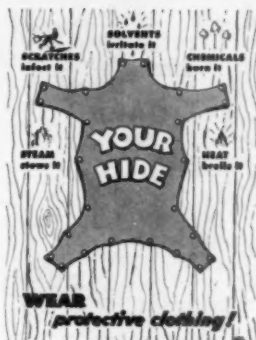
This new four color poster is illustrative of the 72 four color posters shown in the 1951 Poster Directory.

Electrotypes of poster miniatures on this page are not available, nor can payroll inserts be supplied.

Posters below are printed in two or more colors
(Available only in sizes indicated)



NATIONAL SAFETY COUNCIL
9090-B 17x23



NATIONAL SAFETY COUNCIL
9157-A 8½x11½



NATIONAL SAFETY COUNCIL
9188-A 8½x11½



NATIONAL SAFETY COUNCIL
9178-A 8½x11½



NATIONAL SAFETY COUNCIL
8984-B 17x23



NATIONAL SAFETY COUNCIL
9096-A 8½x11½



NATIONAL SAFETY COUNCIL
9140-A 8½x11½



NATIONAL SAFETY COUNCIL
9196-A 8½x11½



NATIONAL SAFETY COUNCIL
9034-B 17x23

Electrotypes or payroll inserts can be furnished on all poster illustrations shown above.

Posters below are printed in two or more colors
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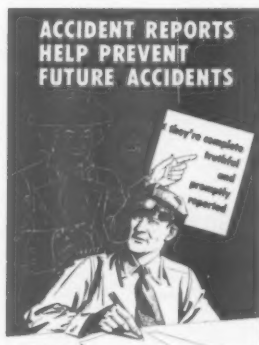
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NATIONAL SAFETY COUNCIL
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Electrotypes or payroll inserts can be furnished on all poster illustrations shown above.

Rain-Making May Be International Problem

Cloud-seeding and rain-making are not only "hot" political issues of the future, but also possible subjects of international dispute. That's the opinion of a scientist of General Electric Research Laboratory.

Speaking before a New Jersey utilities association meeting at Absecon, Dr. Bernard Vonnegut, discoverer of the silver iodide method of producing snow and rain from clouds, said strong evidence has been presented that local seeding operation can have nationwide weather effects.

He referred to studies by Dr. Irving Langmuir, consulting scientist of the Research Laboratory, which showed a remarkable correlation between regularly-scheduled periodic seedings of relatively small amounts of silver iodide in local operations in the West and varying weather conditions noted in various parts of the country.

"Obviously, such seeding operations eventually must come under government control, and no matter to what degree such control is eventually perfected, it will not be able to please everybody," he said.

"The compromise required to obtain the greatest good for the greatest number will very likely take cloud-seeding into the field of politics, and we may be able to look forward to political speeches charging that one party or the other has hopelessly mismanaged weather control," he said.

According to Dr. Vonnegut, weather control may eventually lead to a new set of international problems.

Wheel of Good Fortune

(From page 42)

should be conducted. Here are the most important of these convictions:

1. The contest period should be short—not more than three months and often only a single month.
2. The goal set should be reasonable.
3. The method of drawing should be obviously honest. Otherwise, questions will arise, since some em-

Clean Grease-caked Floors Quickly!



BRUSHES ARE SELF SHARPENING!

Five individual brushes rotate as a unit, maintain top cutting efficiency as they work!

THE **KENT** D-20

DRY SCRUBBER

Grease accumulations are no problem when the sturdy KENT D-20 Dry Scrubber tackles the impacted dirt on your plant floors. One man does the work of several when this dependable machine assists him—and does it better! For safety's sake, see what a KENT Dry Scrubber can do!

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No. 5720-5 LIGHT DUTY
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Sizes 7, 7½, 8, 8½, 9, 9½, 10, 11

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LONGER ... the longest made ... $3\frac{1}{4}$ " ... fits around and overlaps big knuckles. Won't peel up on ends when hands get wet or sweaty!

*** NON-RAVEL PAD** ... no loose threads in wound area ... looks neat, stays neat!

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And it's a *large* six-layer gauze pad, a full $\frac{7}{8}$ " x $1\frac{1}{4}$ " ... all gauze, no cotton filler! Get this complete protection ... ask for No. 100A. Write for samples.

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The sure, safe and economical way to cut down slipping accidents and flash fires ... the way recommended by fire underwriters ... is to spread Oil-Spunj on greasy, oil-soaked floors.

Oil-Spunj covers more floor area, absorbs more oil and grease, it's skid-proof and fire-proof ... may be used over and over again. Simply sprinkle it on ... brush with broom ... sweep it off!

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Cleveland 27, Ohio

employees may be repeatedly lucky. Vitreo's device of throwing darts at a rapidly revolving wheel in the presence of the employees is completely "unfixable" and employees know it.

4. Prizes need not be large, but should be many. Vitreo found a poor reaction when they tried giving away a dress and a suit of clothes instead of, say, 15 baskets of groceries. Actually, Vitreo's appropriation for prizes is only about \$75 a month.

5. Goals and periods should be changed often to give variety to the program.

6. Bulletin-board-type promotion has kept interest high.

The Vitreo safety program includes safety committee meetings, use of National Safety Council services including Jumbo posters, participation in the NSC safety contest for its industry, departmental signs telling time since last accident. The program, Gray and Phippen are convinced, has made employees 100 per cent safety conscious.

The Kid

(From page 35)

roduction to the human-relations side of the job, which you warned me about in that letter you wrote me last spring when I first applied for this job.

I'm beginning to doubt seriously whether I'm cut out for this work. Maybe I ought to go and get experience in mechanical engineering, and come back to safety work when I've got a better background.

It's a darned frustrating thing to apply, as best you can, all the ideas you've picked up from watching a good man like yourself work, to exercise self-control, patience, caution, and then see the situation develop into exactly the kind of thing you have been trying to avoid — the sourness, the bitterness, the grudging compliance with flat orders.

Where did I go wrong?

Sincerely,

Harry Dexter

The Safety Library

(From page 67)

Food Industry

Meat, Men and Safety. (In National Provisioner. Oct. 28, 1950. p.12)

Self-Inspection Plan for Stock Yards. By Adrian B. Palmer (In Meat. Nov. 1950. p.24)

Mines

British Mark a Century of Coal Mine Health and Safety. By V. S. Swaminathan. (In Mining Engineering, Nov. 1950. p.1114)

National Defense

American Strategy in Civil Defense. By Dr. R. E. Lapp (In National Fire Protection Quarterly, Oct. 1950. p.92)

Fire Aspects of Civil Defense. By Horatio Bond. (In National Fire Protection Quarterly, Oct. 1950. p.53)

Public Employees

Reorganized Safety Services Make Notable Gains in Fight Against Accidents and Disease. (In New York State Industrial Bulletin, Oct. 1950. p.8)

What Do I Do

And if Harry's confused, where does that leave me, his boss?

How do I single out of a fuzzy set of information gathered second hand any one or two points of error, point them out, guide him straight, and yet not contribute to his loss of self-confidence?

Or do I accept the responsibility for pushing him into a situation I couldn't expect him to handle skillfully, and so let the criticism go in favor of a straight "you-were-right, hurray-for-you" approach to build his morale? And if I do that, how does he learn from his mistakes?

And finally, do I, with all my superior wisdom, my great experience, my supposed skill and savvy in handling human relations, really feel sure that if I had been there I would have done any better?

If any of you readers have any ideas on what I should say to Harry in this situation, I'd appreciate getting them.

Microscopes and Telescopes

(From page 39)

Adolf Schickelgruber was kicked around by a frustrated father and nagged by a neurotic mother. I am not suggesting that any one of us could precipitate a global war by neglecting a decayed tooth or an ingrowing toenail, but it is by no means impossible that such a thing could lead, through a series of chain reactions, to far-reaching and fatal consequences.

Viruses and the Mind

Viruses are not the only things that spread without being noticed. The same process takes place with states of mind. We can infect other people from our own despondency or hostility, just as easily as from a cold in the head. Hence our first responsibility is to ourselves — to gain and maintain that condition of "complete physical, mental, and social well-being" that constitutes the World Health Organization's definition of health.

Second, in taking the long view we must not overlook our local needs. In learning to use the telescope we must never entirely substitute it for the microscope. Our goal, to be sure, is optimum health for every human being. But in order to attain that goal we must secure the active participation of as many people as possible. As Dr. Brock Chisholm points out, "Health cannot be given as a gift. It must be obtained through constant vigilance and increasing action." To maintain that vigilance, to guarantee that action, we must have broad participation in all worthwhile health measures.

I have said little about that phase of our responsibilities, because anything I might say is already well known. Talking about local health organization is like talking about the eradication of tuberculosis. We know all the facts necessary to do the job. All that remains for us now is to do it. So, may I urge upon all of you once again to take stock of your local health services and needs, and to talk about your problems with your

own community leaders. Effective action in this respect will stem only from many groups of well-informed people who have a clear idea of what they need and are determined to get it and make it work. That's how local health services have come into being in other states. Ask them how they did it, and the answer always boils down to the simple statement that a lot of people wanted it. When enough people want something, they eventually get it.

Don't Curtail

No matter what the immediate future may hold, our public health services should not be curtailed. Whatever defensive measures may be set up against possible attack, those measures will be centered in and directed by our public health organization. In that task as in many others, this Minnesota Public Health Conference is now in a position to give strong leadership. It is true that we are a young organization. But in times of crisis, young people often have to grow up pretty fast.

We see before us today, as we have seen in previous years, the spectacle of many nations that have fallen under the heel of dictators because they did not know or did not care enough to hold on to their liberties. We will not join them unless we allow our democratic processes to lapse. One way of maintaining those democratic processes is to build up associations in which we work for the benefit of everyone through the active participation of all qualified people.

We have talked about science — about using the instruments of science for the discovery of truth and the promotion of health. Our generation has learned through hard experience the tragic neutrality of science. It may be used to save life or to destroy it. But we have not abandoned science for that reason. Nor do we have any intention of doing so. Through the gradual spread of knowledge, we may hope to bring about the end that we so greatly desire — the attainment of universal peace and



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WOULD ELECT
Mione hand cleaners**

Mione Hand Cleaners are popular with workers because they get dirty hands clean *quickly, easily and safely*. And their economy is popular with management—a little Mione goes a long way.

There are 4 different Mione Hand Cleaners in powdered form—a grade for *very dirty hands*, another for office and home use, and intermediate grades for in-between wash-ups. All contain Coconut Oil and Lanolin; all are effective in either hot or cold water; all lather profusely and are pleasantly perfumed.

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For happier hands at wash-up time, supply **YOUR** workers with the type of Mione best suited to their needs. Your supplier of wash-room needs can give you full particulars about Mione, plus samples. If not, for any reason, write direct to us.

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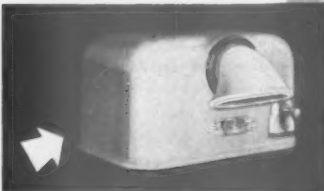
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OR
MISS"**

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Methods?

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Electric HAND DRYERS

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Cleaner Washrooms!



Save Towel and Maintenance Costs!

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3. New, smaller, oval nozzle produces more concentrated, faster-drying air stream.
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security. Improvement of the physical, mental, and social health of all nations is essential to that end. We need to establish in every country a nucleus of workers who have the necessary training and skill to promote all aspects of health.

Let us never make the mistake of assuming that all knowledge and all truth are in our possession. There is much we can learn from other countries, even as they have much to learn from us. We need to pool *all* health knowledge — to work with all people of good will everywhere toward the achievement of world-wide health. To do this effectively we must continue to use both the microscope and the telescope — to study intensively our own health needs, but at the same time to look beyond these immediate concerns to those of all the nations of the earth.

Disposal of Fume

(From page 37)

point of 110° to 120°F and Gulf Oil No. 896 with a flash point of 270°F were used for some of the tests, but water for most of them.

Water was the cheapest and most practical to use as it could be run to the sewer and it was the best solvent for the acrolein constituent of the fume. The use of solvent oils for scrubbing presented problems of disposal as well as fire and explosion hazards. Final tests with the experimental scrubber indicated that it would effectively scrub about 325 cfm of fume-laden air, using 8.5 gpm of water at 120 psi.

As tests with the experimental scrubber indicated that linseed oil fumes could be satisfactorily eliminated, a large scrubber designed to handle 2000 cfm of fume-laden air was set up in the plant. It was expected that this scrubber would eliminate all fumes from two 1000-gallon kettles, heat-bodilying linseed oil; and from two 1200-gallon and one 1000-gallon kettles, air-bodilying linseed oil.

In general, there were two types of fumes to be handled: (1) dense oily fumes containing some acro-

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lein and other aldehydes; (2) pale, vaporous fumes, mainly acrolein and other aldehyde vapor with a slight amount of entrained oil caused by the air jets. The second type is far worse because of its extremely irritating effect on the mucous membrane of the throat, eyes and nose, and because of its nauseating effect.

There are no known means of quantitatively determining the content or the removal of the fumes from the air stream. The qualitative test used for determining the elimination of the very irritating acrolein vapor from the fume laden air stream was the effect of the scrubbed gases on the tester's nose and eyes when a jet of the discharged gases was permitted to blow in his face.

Any appreciable amount of irritation would classify the fumes as strong. If a slight irritation was experienced after about 5 seconds of breathing the fumes, the acrolein was considered very faint. An estimate of the extent of the elimination of the visible oily fumes depends solely upon the experienced judgment of the observer when viewing the density of the scrubbed fumes issuing from the stack.

Because of the water insolubility of the oil fume and the considerable solubility of the acrolein, there were two main elimination problems. Water, atomized by spraying, eliminates (1) by impact and (2) by solution, the first being the most difficult elimination problem. Even though as much as 95 per cent of the mass of the oil fume is removed by scrubbing, the residual fume is still dense enough to be easily seen and may indicate only a 50 per cent reduction in density.

However, complaining neighbors are not satisfied until they cannot see the fumes, even though the odor may have been taken out. This is most discouraging to the investigator when he realizes, as we finally did, that the fume scrubbing has to be almost 100 per cent complete. It was the residual fume particles of one micron diameter and smaller that were the despair of this investigator until he determined how to almost com-

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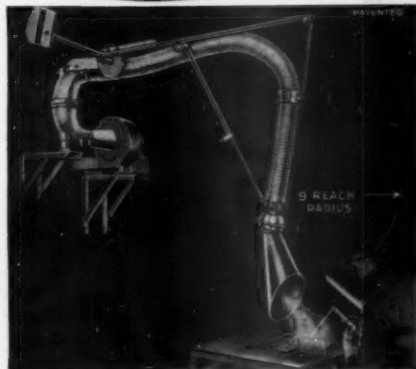
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Welding shops equipped with Ruemelin Fume Collectors are assured of a clean shop atmosphere. Noxious fumes, heat and smoke are eliminated at their source, thus improving working conditions, lessening fatigue and paving the way for increased plant production.

The Ruemelin Fume Collector hood can be instantly placed where needed anywhere in the booth welding area. No tedious adjustments necessary. Just pull the inlet hood to the welding position and you are ready to go. Approved by state industrial commissions and by compensation insurance companies. Simple to install. Thousands in service. Many users send in repeat orders. Write for bulletin 37-D today.

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pletely eliminate these also with the Pease-Anthony Scrubber.

In the beginning, when we were attempting to scrub 2000 cfm with about 25 gpm of water spray, it was calculated that we were obtaining about a 97 to 98 per cent removal of the mass of the fume but the fume coming out of the stack appeared to be only half as dense as that without any scrubbing action. We increased the pressure of the water on the spray nozzles to about 150 to 160 psi which increased the fume elimination somewhat. Because of the difficulties in getting more water into the scrubber, we tried cutting down on the fume volume, incidentally increasing the density of the fume being handled and also the efficiency in the use of the water.

Finally, we succeeded in getting such practically complete elimination that the faint residual fume going out of the top of the stack could be detected only with difficulty against a dark background. Also, the odor of acrolein and other aldehydes was definitely gone. These results were obtained while scrubbing about 1000 cfm of 165°F fume-laden air. This was the entire amount from two 1000-gallon open kettles, heat bodying linseed oil at 580°F. Thirty-two nozzles were in use, delivering 25 gpm of water spray at 150 psi.

Limiting Relationship

Most investigators do not fully realize that for effective scrubbing, there exists a limiting relationship between the size of the fume particle and the water droplet. To obtain an effective impact of the fume particle with the water droplets, the latter should be smaller than that size around which the fume particle would tend to streamline. According to the Pease-Anthony theory, the water droplets should be no greater than about 100 to 200 times the size of the fume particle to be eliminated.

As an illustration to show that this relationship has not been fully comprehended, consider the ineffectiveness of the common packed contact tower through

which water trickles counter-current to the flow of the fume. In spite of the tremendous surface of contact and the smallness of the interstices of the packing, the tiny fume particles just streamline through the tower because the surface of the packing is too large in relation to the diameter of the particle.

Time Is Important Factor

Another important factor in water spray scrubbing is the time during which the fume stream is subjected to the action of the water sprays. Also, the greater the number of washes a volume of fume-laden air receives, the better will be the fume elimination. In the Pease-Anthony scrubber, the fume is admitted tangentially at the bottom of the scrubber at a high velocity, and travels a spiral path through the spray zone towards the top of the scrubber. Above the spray zone, the cyclonic action of the mass of air and residual water spray causes the spray to be thrown out by centrifugal force so that the washed air, though saturated with water vapor, exits from the scrubber without any entrained spray.

The diameter and height of the scrubber shell, design and size of the tangential inlet, etc., are all factors which must be carefully engineered. It is too much to expect a home-made makeshift scrubber to function as well as one engineered by specialists.

A new scrubber, called the Venturi scrubber, is being developed by the Pease-Anthony Equipment Company. The older type of scrubber has done an excellent job of disposal of linseed oil fume, 95 per cent of the mass of which is composed of particles averaging 10 microns in diameter and will, no doubt, accomplish satisfactory disposal of many varnish fumes. Because varnish fumes vary considerably, and because some of them may be composed mainly of particles of sub-micron size, it is likely that some varnish fumes may be handled more effectively by the new Venturi scrubber.

"The bonds I bought for our country's defense
-will see my twins through college!"



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MRS. MARY CALLON OF INDIANAPOLIS, INDIANA**

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Mrs. Callon's story can be your story, too!

What Mary Callon did, you can do, too—and just as easily! Just take these three simple steps—today:

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3. Start saving automatically by signing up today in the Payroll Savings Plan where you work or the Bond-A-

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You'll be providing security not only for yourself and your family but for the free way of life that's so important to us all. And in far less time than you think, your plans will turn into reality, just as Mary Callon's are doing.

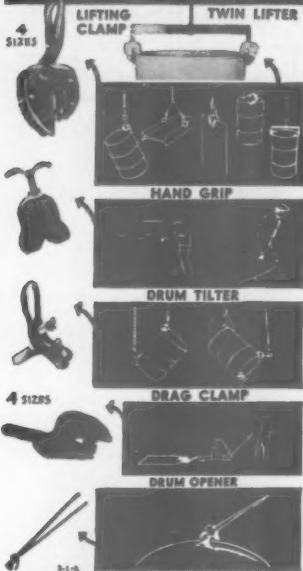
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The Triple Safety Heel was designed to minimize foot slipping accidents. It has a tread design of circular ribs with connecting cross bars that causes suction. In walking it gives road contact at one inch, where ordinary heels contact only on the edge. Laboratory tests show Triple Safety Heel has 97% road contact and traction.

Design permits rubber to flex, absorbing body shocks, minimizing fatigue. Triple Safety Heels will give longer wear and reduce slipping accidents on wet or slippery floors.

WRITE FOR CIRCULAR

TRIPLE SAFETY HEEL CO.
2149 Leland Avenue Chicago 25, Ill.

Removal of Ice and Snow

(From page 30)

23. A flexible lead-covered heating cable may be used. It is essentially a portable device, which may be plugged into an outlet or receptacle.

24. To keep walkways, driveways, and loading platforms clear of snow and ice, the heater cable is spread out on top of the snow. (See Figure 6.) Where there is constant traffic, the cable can be imbedded in the concrete or asphalt from 1 inch to 1½ inches below the surface. To prevent damage to the concrete and possible subsequent damage to the cable, the area can be painted or dyed as a warning to heavy traffic. This type of installation requires about 20 watts per square foot to soften snow or ice next to the pavement.

25. When the loose cable is used, it is important that the public and employees be protected from a tripping hazard. The area in which the cable is placed can be barricaded and roped off, or traffic can be rerouted until the snow and ice have melted and the area has been drained clear.

26. The cable should be protected from being cut or otherwise damaged by sharp metal objects. When it is laid across main traffic lanes, bridge plates should be provided as protection from hand trucks.

27. A plant which has a pitched roof and an ell or an addition to the main building usually has a valley in the roof in which ice and snow and water accumulate rapidly and form a dam of ice. To prevent such a dam from forming, this type of heating cable can be installed in the valley. The cable when energized melts the ice sufficiently to maintain 1- to 2-inch channels in the dam. The water is permitted to drain off the roof, so that formation of a reservoir and the consequent damage are prevented.

28. Gutters and downspouts or roof drains can also be equipped with the heating cable so that a 1- to 2-inch channel will be formed in the ice and thus allow proper

drainage. (See Figure 7.) If the downspout passes through the ground to a catch basin or other drainage point, the heating cable must extend below the frost line to prevent the system from freezing.

29. The cable can be installed on outside metal stairways leading to industrial equipment so that snow will melt and drain to prevent formation of ice. It can be wrapped around pipe lines and covered with insulation to hold the heat, thus preventing freezing, bursting, and leakage of water which might re-freeze and form into hanging ice. (See Figures 8 and 9.) This method is used in isolated valve pits and water hydrants. One concern uses this system to prevent condensation from freezing in air lines.

30. To remove ice formations from around valve stems, traps, or other movable fittings, *infrared heat lamps* can be spotted. The heat can be concentrated on a small area.

Disposal

31. The methods discussed

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TO make your new scientific color paint job **LAST**—precondition walls, floors, equipment with Oakite cleaning and paint-stripping materials. They give you:

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SPECIALIZED INDUSTRIAL CLEANING
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above are of no value unless proper drainage is provided for the melted materials. If drainage is not provided, water may collect and re-freeze causing an even greater hazard at another location. (Proper drainage is especially important at the outer fringes of buried heating units.)

32. Drainage channels leading into sewers, manholes, or ditches should be cut. Occasional application of salt will keep the material flowing.

33. Sewer covers and gratings should be salted to prevent the small openings from freezing and blocking drainage.

34. Additional lengths of heating cable can be applied to these drainage sources by means of extension cords. These cords should be of heavy duty rubber, well maintained, and all connection plugs should be kept off the ground and out of water.

Design

35. Good engineering design requires that all industrial pipes be installed in warm areas or completely insulated when exposed to the elements. As an example, hot water and condensate steam outlets that may form ice on walkways should be relocated in warm areas or insulated and connected to drains and blow-off drums.

36. During remodeling, alteration, or new construction, nonslip grating should be used wherever possible for all walkways, catwalks, bridge flooring, ramps, etc., especially in locations exposed to the elements. Snow does not accumulate on grating. It falls through, and hence the snow and ice hazard is eliminated.

ACKNOWLEDGMENT

The first draft of this data sheet was prepared by Fred T. Clarke, safety supervisor, General Electric Company, and member of the Executive Committee, Electrical Equipment Section, National Safety Council, and reviewed by W. R. Ainley, chairman, Engineering Committee. The final draft was prepared by George MacDonald, staff representative, Electrical Equipment Section, reviewed by the Safe Practices Conference Committee, and approved by the Industrial Conference of the Council.

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FREE! Bulletin 593

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New DEPENDON SHIELD with Replaceable Window



Here is our new No. 364 Dependon Shield, designed especially for complete face protection and greatest possible comfort. It is liberally ventilated, frame is of helmet fibre, has vulcoid strap over the headgear and special sweat band. The window is 6 1/8" x 15" clear cellulose acetate, .040" or .060" thick. Can also be supplied with brass wire window for hot jobs.

Ask your dealer about this shield—or write us for a sample shield on memo for "on the job" test purposes.

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ACME PROTECTION EQUIPMENT COMPANY

3637 WEST LAKE STREET, CHICAGO 12, ILLINOIS



NEW SAFETY EQUIPMENT FOR INDUSTRY

Further information on these new products and equipment may be obtained by writing direct to the manufacturer. It will help in identifying the product to mention this announcement.

Trackmobile

Versatility and efficiency in materials-handling jobs such as hauling, spotting and switching railway cars are promised in the new Trackmobile, manufactured by Whiting Corp., Harvey, Ill.

Small and compact, the gasoline-powered trackmobile makes use of hydraulic jacking power for two features to simplify yard and in-plant handling of railway cars. These are ability to travel either on the railway track or on the ground and to change from one to the other in 30 seconds. The hydraulic jacking power also develops an adhesive force which gives the trackmobile, which weighs 6,000 pounds, a pulling power greater than that of plant locomotives weighing much more.



The trackmobile couples to any standard railway car. When coupled, the hydraulic jack in the trackmobile raises the special coupler, forcing the trackmobile down on the track. A portion of the car's weight is thus transferred onto the trackmobile, enabling it to develop a maximum drawbar pull of 7,350 pounds.

The trackmobile uses four standard AAR steel wheels for track travel. The four rubber-tired wheels for ground travel are hydraulically retracted when the trackmobile is positioned for track operation. One operator easily controls transfer from one set of wheels to the other. Maximum ground speed is 25 miles per hour; track speed varies with the load. The trackmobile can do switching or spotting and then move from track to ground to travel across the yard for another job. The machine will be on the market early in 1951.

Floor Surfacing

United Laboratories, Inc., 16801 Euclid Ave., Cleveland, announces a major improvement in its plastic rock floor surfacing. This new development, known as Superset plastic rock, is designed especially for resurfacing old floors of concrete, wood or steel and to provide a tough, durable floor for heavy traffic. The improved product is more rapid in hardening, thus reducing the application time. It is delivered in complete unit form, containing all in-

gredients (except water) ready for mixing on the job. Contents of each unit are proportioned at the factory to cover a predetermined area at a specified depth. The new product is available in several gradings, depending on the type of application for which the material is specified.

Concrete Saw

Industrial plants can now safely cut any concrete or asphalt flooring for expansion joints or patch work for repairs of plumbing, conduit, etc. The sawed and finished joints provide finished edges for concrete pouring and eliminate rough, spalled edges and chuck holes.



Readily portable, these clipper saws are the latest development of Clipper Manufacturing Co., Concrete Saw Division, 2800 Warwick, Kansas City, Mo. Model C-75 with 7½ h.p. engine, or Power Packed C-130 with a 13 h.p. 2 cylinder engine are best suited for paving contractors and highway maintenance divisions.

Models C-15 and C-20 with electric motors are produced specifically for plumbers, electrical contractors, and building maintenance departments. The Model CHD makes it possible for present owners of Model HD's to convert masonry saws for concrete sawing.

Features claimed are: floating three-point suspension which prevents blade binding as saw is moved over rough surface, positive screw feed, streamlined design for ease of handling.

Gas Alarm System

A continuous combustible gas alarm system, incorporating a new, more accurate principle of gas and vapor analysis and measurement is announced by Davis Emergency Equipment Co., 45 Halleck St., Newark, N. J. The improved precision of analysis is achieved by use of an entirely new filament construction, employing fine platinum wire and a thermocouple, and by measuring and recording the actual increase in temperature of the wire rather than the increased resistance as is

done in the older Wheatstone bridge principle.



Zero drift, a major factor in the Wheatstone bridge, has been virtually eliminated, and the new alarm system can be used as a continuous detection and alarm system for the protection of processes, plants and personnel. It functions as a stable system insuring constant zero balance over holidays, without attention, and for process control requiring a constant proportioning of combustibles in air.

The operating principle of this gas alarm system is based on the fact that a fine platinum wire filament having a constant voltage applied to it remains at a reasonable constant temperature, even as the cross sectional area is reduced due to the evaporation of the platinum. The increase in resistance, due to decreased cross section, reduces the current passing. In the new system the change in filament temperature, due to the presence of a combustible gas or vapor, is measured by means of a thermocouple. The thermocouples of the analyzing and reference cells are connected series opposing so that the difference in output is indicated on meter or recorders.

Fire Protection

Almost every establishment has unattended areas where fire can start unnoticed. In such areas fire could get such a start before discovery that it would get beyond the power of portable extinguishers to control. Through the use of directional valves, Walter Kidde & Co., 1220 Main St., Bellevue, N. J., has made it possible for any plant to police and protect several hazard areas on a 24-hour basis with a single source of extinguishing agent.

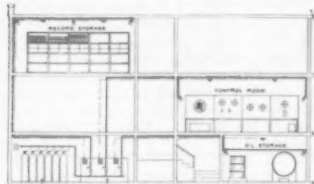
As the diagram shows, the supply source of the Multi-Space fire guard system comprises storage cylinders manifolded together for simultaneous discharge. The cylinder bank can be arranged in groups so that each of several hazards can be protected by an initial discharge group and a reserve discharge group of cylinders. Hazard spaces shown in the drawing are

NEW SAFETY EQUIPMENT FOR INDUSTRY



Manufacturers are invited to send in announcements of new products, or improved special features. Only items which can be considered as "news" to our readers will be published.

typical of the three types of fires most often encountered: deep-seated fire (in record storage); electrical fire (in control room); flammable liquid fire (in oil storage area).



KIDDE MULTI-SPACE CARBON DIOXIDE FIRE PROTECTION WITH DIRECTIONAL VALVE CONTROL

The carbon dioxide discharge pipeline from the cylinder bank connects to a directional valve frame, where there is a valve for each hazard space protected. From the directional valve frame — which is prefabricated for any plant system — a carbon dioxide discharge line and a fire detector connecting line goes to each hazard area. Within each protected space are one or more fire detectors and a network of multi-jet discharge nozzles.

When the detector picks up the first signal of fire it actuates the directional valve controlling the group of cylinders guarding that space. A mechanical linkage, between the directional valve and the correct group of the cylinders in the supply bank, opens the release valves on the heads of these cylinders. Under its own power, the carbon dioxide rushes through the discharge piping, is directed along the path to the space in danger, and is discharged as an inert gas from the nozzles. Expanding to 450 times its stored volume, the carbon dioxide floods the hazard space. Being inert, carbon dioxide cannot harm any material with which it comes in contact.

The extinguishing system usually includes automatic controls to close doors, windows, and ventilating dampers in the fire area; sounds an alarm so that personnel may evacuate the danger area; and operates switches to shut off all electrical machinery. The system is also arranged for manual operation, both at the directional valves and at remote points.

Liter-Flow Adaptor

The new Linde L-26 oxygen therapy liter-flow adaptor makes it possible to administer oxygen from an industrial type oxygen regulator and a cylinder of oxygen. The new adaptor converts pounds per square inch pressure to "liters-per-minute" flow. In emergencies, the L-26 adaptor can be especially useful to disaster and res-

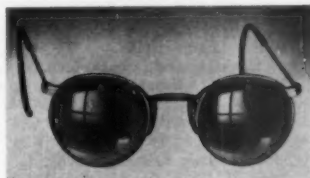
cue crews in industrial plants, and to civilian defense organizations in augmenting available hospital-type therapy regulators.

The L-26 adaptor is approximately 4 inches long and is finished in brushed chrome. It contains no moving or fragile parts, and is designed to give long service without maintenance. Because of its small size and light weight, the adaptor can be carried by the physician in his bag or in the glove compartment of his car for instant use in an emergency. The adaptor is a product of The Linde Air Products Co., 30 East 42nd St., New York 17, N. Y.

Safety Goggle

A new metal safety goggle featuring light weight and stronger construction is announced by American Optical Co., Southbridge, Mass. Designed to provide eye protection from flying particles, the new F4100 Ful-Vue metal goggle has many design features not ordinarily found in metal safety goggles.

The new lightweight eyewire is flat instead of round, has engraved beading to add a distinctive touch. Endpieces are streamlined and incorporate a friction joint with wide bearing surfaces minimizing temple drop. Screw heads are countersunk for non-snagging security. Temples

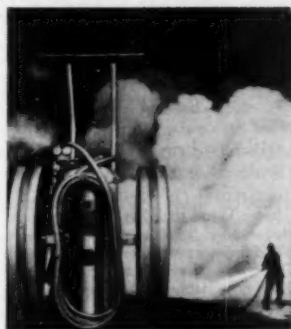


are lighter, easily adjusted, and have perspiration-proof, brown insulating tubing over the ear portions. Guard arms supporting the nose pads are longer and newly shaped for added ease of adjustment. The improved double braced bridge provides rugged strength.

Side shields, providing protection against laterally striking particles, are optional; may be obtained in either non-corrosive perforated wire mesh or clear acetate, either perforated or non-perforated. Goggles are supplied in three standard eye sizes and five standard bridge sizes. There is a smaller eye size and bridge size available for fitting goggles containing prescription lenses to small faces. The new goggle may be obtained with 6 curve Super Armorplate clear or Calobar lenses in medium, dark or extra dark shades. Goggles may be fitted with Super Armorplate lenses ground to the worker's prescription.

Dry Chemical Engine

A new giant fire killer for extinguishing flammable liquid and electrical type fires is announced by American La-France-Foamite Corp., Elmira, N. Y. It is the Alfco 350 dry chemical wheeled portable engine, the largest unit of its kind now available, yet one which can be easily handled by two men. It carries the inspection and approval label of both Underwriters, and Factory Mutual Laboratories with B and C classification.



The smothering action on fire is unusual. Fires of considerable proportions are quickly extinguished by the blanketing cloud of dry chemical. The sustained pressurized discharge has an effect of cooling and insulating the operator from the intense heat of the fire. Aided by a discharge range of from 20 to 25 feet, this cooling effect enables the operator to move up quickly on the fire with the full force of the blanketing discharge. Added to the force of the discharge is the normal gravity pull of the dry chemical which is heavier than air. Its natural downward direction, accelerated by the pressurized charge behind it, resists the updraft of the air currents caused by the flames.

The result is a concentration of dry chemical at the seat of the fire, aiding in fast extinguishment. The tank of the engine contains 350 pounds of dry chemical. The entire contents can be discharged if necessary in about one minute and 15 seconds. Expellent is dry nitrogen, with an operating pressure of 200 psi during the entire period of discharge.

News Items

David F. Seymour, formerly in technical sales service for Metal Industries Department of The Diversey Corp., Chicago, has been transferred to the South Gate, California, plant of Diversey as plant manager and supervisor of manufacturing operations.

Mr. Seymour succeeds Eric C. Foote, Jr., who moves to the new plant of The



NEW SAFETY EQUIPMENT FOR INDUSTRY

Further information on these new products and equipment may be obtained by writing direct to the manufacturer. It will help in identifying the product to mention this announcement.

Diversey Corp. (Canada), Ltd., Port Credit, Ontario, as plant manager and supervisor of manufacturing.

Mr. Seymour joined Diversey in 1947. For two years before coming to Diversey he was with the Promat Division of Poor & Co. in plating research and service. Mr. Foote joined Diversey in 1947 after service in the Navy as lieutenant, junior grade.

Diversey manufactures and sells cleaners and disinfectants for food plant sanitation, industrial insecticides, refined clays for decolorizing and deodorizing animal

and mineral oils, cleaners used in preparing metal surfaces for finishing and a special line of cleaners, polishes and disinfectants for industrial and institutional maintenance.

Union Wire Rope Corp. of Kansas City, Mo., announces the thirteenth in its network of branch offices and warehouses has been opened at 1341 Vega St., Jacksonville, Fla. George Golay, who has represented the firm in Southeastern territory, is now district manager. Melvin Hass,

graduate of Kansas University and Union's laboratory and mill training school, has joined the Jacksonville sales staff and is assigned to the Carolinas, Georgia and Alabama territories.

Other transfers of sales personnel takes D. E. Bedford to Eastern Pennsylvania and New York territory from Iowa and Nebraska where he has served several years. Eugene R. Rhue, graduate of Kansas University and Union's laboratory and mill training school, will succeed Mr. Bedford in the Iowa-Nebraska territory.

Safety's Alphabet

Miss Anne Pennington, R.N., nurse at the Ramapo Ajax Division of American Brake Shoe Company at East St. Louis, Ill., is a frequent contributor of rhymes and slogans to *Brake Shoe News*. Here is one of her recent contributions:

Always be on the alert
Beware, for injuries hurt
Carefulness at work or at play
Don't jaywalk across the highway
Ever be watchful for danger signs
Faithfully obey safety lines
Guard against injuries and pains
Help prevent accident gains
Injuries for the unsafe one
Joking and horseplay's not fun
Keeping out of dangerous places
Look before you go through your
paces
Move caution in following the rules
No swimming in unguarded pools
Obeying Safety rules in every way
Putting Safety first every day
Quit careless habits right now
Running headlong will injure some-
how
Start the day safely each morn
Teaching, that's how safety is born
Understand our good safety laws
Vigilance is taught for a cause
Watchfulness, the Safety Man's creed
Xtra is the caution we need
Yielding to safety command
Zealous caution, it's safety's demand.

Calendar Contest Winners For November

First prize in the National Safety Council's Safety Calendar Contest goes to Eric Walter Bastin of Hamilton, Ontario. Mr. Bastin is a truck dispatcher in The Steel Company of Canada, Limited, Hamilton Works. The theme in this contest was fire prevention. Mr. Bastin's two-line rhyme was adjudged best of all those submitted. It was:

*There's the man who tossed away
A match, (and his job.) on the
self-same day.*

Second prize went to Mrs. Louise Prentice of Chattanooga, Tennessee, for this rhyme:

*He learned two lessons—sharp
and bitter—
DOUSE that match! CLEAN
UP that litter!*

Third prize was awarded to J. E. Brown of Spartanburg, S. C., for the following rhyme:

*A whiz he is—this Dopey Dizz,—
He "burns 'em up"—your job
and his.*

Thirty \$5 awards were issued to: Herb C. Smith, The Steel Company of Canada, Limited, Hamilton, Ontario. Mrs. G. E. Wadsworth, Birmingham, Ala.

Jean Rodgers, Oliver Iron Mining Co., Duluth, Minn.

Mrs. Marion Leonard, Washington, D. C.

M/Sgt. Charles G. Ellicott, Fitzsimons Army Hospital, Denver, Colo.

Mrs. R. V. Goldsborough, Elmhurst, Ill.

Mrs. Ruth Schenley, Monaca, Pa.

Mrs. Walter A. Yaeger, Racine, Wis.

Mrs. Theodore Yellman, Clinton, Ia.

Lynn M. Esten, Du Pont Co., Fairfield, Conn.

Walter H. Cassel, Stanolind Oil & Gas, Woodshoro, Tex.

Mrs. I. M. Gerhart, Santa Ana, Calif.

C. J. Schweiss, Consumers Power Co., Kalamazoo, Mich.

Mrs. Franklin Gordon, Falls Village, Conn.

Donna J. Curvin, Morse Chain Co., Detroit, Mich.

Mrs. Leslie C. Foley, Long Beach, Calif.

Mary Ratemann, New Portland Cement Co., St. Louis, Mo.

Mrs. Ruth Schaefer, Sayreville, N. J.

Henry D. Rhodes, Hughes Tool Company, Houston, Texas.

Mrs. E. F. Boyle, Summit Station, Ohio.

H. R. Lawton, New York Telephone Co., Albany, N. Y.

Miss Ruth Paris, Craddock Terry Shoe Corp., Lynchburg, Va.

John L. Grayson, Alpha Portland Cement Company, Manheim, W. V.

Mrs. May D. Zihl, St. Louis, Mo.

Mrs. Dean B. Wheeler, Schenectady, N. Y.

Mrs. Grace Hartmann, Chicago.

Mrs. Earl Cox, Hot Springs, Ark.

Irving Karltz, Accountant, New York, N. Y.

Nick O'Renck, Standard Oil Company, Sugar Creek, Mo.

Miss Elizabeth J. Moore, Carolina Power & Light Company, Asheville, N. C.

Win Prizes for Job Safety Analysis

Thirty-six prizes, ranging from fishing rods to television sets, were presented in a recent ceremony to winners of a job safety analysis contest conducted by the John F. Queeny plant of Monsanto Chemical Company, St. Louis.

At the same time, Plant Manager A. J. Pastene, who made the presentations, announced that the plant had worked more than 2,000,000 safe man-hours, or 182 days, without a disabling injury. The record was 2,163,236 man-hours, established in 1945.

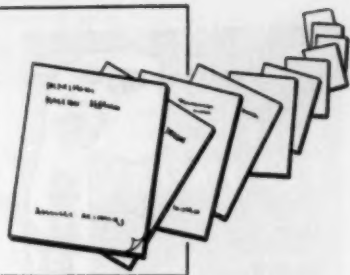
The prizes were awarded to employees who made the best breakdowns and safe performance descriptions of their individual jobs. It was intended to emphasize the importance of safe practices at every step of an operation. A total of 524 entries was submitted during the contest period.

Approximately 1300 employees left their jobs to attend the ceremonies held on a bunting-decked platform erected for the purpose in the plant's huge machine shop building.

TRADE PUBLICATIONS

in the Safety Field

These trade publications will help you to keep up-to-the-minute on new products and developments in industrial health and safety equipment. They are free and will be sent by manufacturers without obligation to readers of NATIONAL SAFETY NEWS who are responsible for this work. Send in the coupon below checked for the publications you desire. Please make your requests promptly.



1. **Insect Control:** Illustrated booklet gives complete information on insecticides and insect control equipment such as atomizers, mistorizers, and fogging units. Chart with illustrations of industrial insects gives place found, extent of damage done, identifying features, reproductive rate, method of control and other information. West Disinfecting Co.

2. **Steel Alloy Chisels:** Brochure with specifications on several types of hand chisels, center punches, pneumatic chisels, riveting hammer retainer tools, paving breaker moil points and others. Magnetic particle inspected. Delaware Tool Steel Corp.

3. **Sling Chain:** Catalog of heat treated alloy steel sling chains. Complete specifications on single sling, double sling, triple and quad branch sling chains, slip hooks, grab hooks, reverse eye wide throat hook and other special items included. Columbus-McKinnon Chain Corp.

4. **Fire Extinguishers and Systems:** Illustrated brochure on carbon dioxide, carbon tetrachloride, dry powder, foam, pump tank and soda acid extinguishers emphasizes correct extinguisher for specific fire hazards. Portable and fixed equipment included. Randolph Laboratories, Inc.

5. **Safety Clothing and Equipment:** Complete catalog of protective clothing and equipment for body, face and hand protection from heat, fire, sparks, chemicals and other hazards. Items made of such materials as asbestos, chrome leather, oil-chem plastic sheeting and others. Also miscellaneous safety equipment. Safety Clothing and Equipment Co.

6. **Lineman's Tool Guide:** Illustrated pocket guide to tools for linemen, electricians, and mechanics. Includes hand tools, climbing equipment, tool belts and bags, block tackle, hand line, hooks, snaps and other items. Also section on "useful information." Mathias Klein & Sons.

7. **Abrasive Steel Floor Plate:** Illustrated booklet on abrasive rolled steel floor plate whose non-slip properties are present under both dry and wet conditions. Fabricating data, recommended uses, and charts on allowable load and maximum sizes included. Also price list. Alan Wood Steel Co.

8. **Aluminum Ladders:** Catalog with illustrations of all types of aluminum ladders, planks and stages, A-jacks, extension trestles and other equipment with accessories. Detailed description of construction and specifications included. Louisville Metal Products Co., Inc.

9. **Modern Maintenance Catalog:** A complete line of maintenance equipment is listed and described in this catalog which includes deodorants, disinfectants, dressings, insecticides, paints, waxes, polishes and removers. Maintenance machinery and equipment also described. Hillyards.

10. **Dust Collectors:** Cabinet dust collectors in sizes from $\frac{1}{2}$ to 5 horsepower, and cyclone separator types from $\frac{1}{2}$ to 5 horsepower are described in this new catalog. Several new items are also presented, including special purpose units and a twin separator model. Torit Mfg. Co.

11. **"How Service Awards Promote Loyalty":** Booklet on service awards in business and industry contains full-color reproductions of pins and button awards, types used in established loyalty programs of business and institutional organizations throughout the country. The American Emblem Co.

12. **Steel Display Panels:** Illustrated brochure on steel sign assembly which consists of series of porcelain enamel stamped metal panels for background on which can be mounted plastic or aluminum letters. Size can be altered by adding or removing

sections. Can be illuminated. Wagner Sign Service, Inc.

13. **Protective Equipment:** Fully illustrated catalog of protective equipment such as face protectors, chrome leather hand pads, guards and mitts, safety aprons, of vinylite and chrome leather, twill helmets, and kidney belts. Joseph Buegeleisen Co.

14. **Fluorescent Lighting:** Catalog presents a full range of commercial and industrial fluorescent and germicidal lighting equipment. Features new 4' "Slimline" for the complete line of 40W fluorescents. Edwin F. Guth Co.

15. **Wire Rope for Excavating:** Booklet illustrated with charts and diagrams which show recommended uses of wire rope on excavating equipment such as shovels, cranes, dragline excavators, trench hoers and skimmers. Detailed diagrams show cross cuts of rope and strand construction. John A. Roebling's Sons.

16. **Metal Surface Protection:** Brochure on new plastic, non-inflammable product compounded to give all weather protection against water and corrosive fumes. Recommended for metal roofs, structural steel, caulking, metal ducts and stacks. Can be poured, brushed, sprayed, troweled or gunned onto surface. Flexrock Co.

17. **Wire Sling Safety Card:** Designed with riggers, crane followers, floor men and maintenance men in mind, this pocket-size card gives tips on proper care and use of wire slings for safe handling. Macwhytte Co.

18. **Eye Wash Fountains:** Emergency eye wash fountains and shower-fountain combinations are described in this illustrated booklet. Designed for first aid treatment of eye accidents involving chemicals, metal and other small particles. Drinking water facilities also included. Haws Drinking Faucet Co.

NATIONAL SAFETY NEWS

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CANADA

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about **DUST and FUME
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Picture of a
Free Man!

thanks to

Cesco's New #600 AIR-FED HOOD

FREE from weighty, rigid hoods!

CESCO's #600 AIR-FED HOOD is made of an extremely lightweight, highly flexible rubberized fabric. This, plus its complete adjustability, provides unequalled comfort and full freedom of movement.

FREE from hoods with narrow, fixed vision!

CESCO's #600 has an extra-large, clear plastic window for extreme, wide angle vision. In addition, its adjustable plastic headband is mounted to the hood on a friction swivel to allow full vision up or down as the user moves his head.

FREE from toxic dusts!

Air fed into the #600 HOOD is tubed around to each side of the face. Here it is diffused and filtered thru cloth bags so that a constant supply of clean, cool, fresh air is maintained directly in the respiratory zone. Further protection is given by a soft cotton bib which acts as a baffle to keep out dust. It zips out for cleaning.

Cesco's New #600 AIR-FED HOOD.
Approved by U.S. BUREAU OF MINES under
"Class C" Respirator for use where toxic
dust and fumes are encountered. Oper-
ating pressure 5 to 9 pounds.

FREE from harmful abrasive particles! • #600's lightweight, but tough, fabric protects the head, shoulders, chest and back against flying particles. It is also waterproof and acid-resistant. The sponge-rubber mounted, plastic window withstands abrasion, and its large area gives it excellent impact resistance.

FREE from fatiguing, noisy air inlets! • #600's carefully thought-out design and construction brings the incoming air into the hood almost noiselessly.

FREE to work better, faster, more safely! • The exclusive advantages of CESCO's new #600 AIR-FED HOOD are bound to increase worker comfort, safety, and output. It is ideal for lead discing and other grinding operations, light sandblasting, paint spraying, etc. Write for more detailed information or see your CESCO Distributor.

CHICAGO EYE SHIELD COMPANY • 2306 Warren Boulevard • Chicago 12, Illinois



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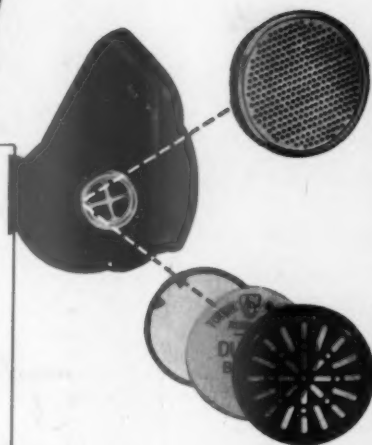
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Houston, Los Angeles, Montreal, Philadelphia, Pittsburgh, Salt Lake City, Spokane, St. Louis, St. Paul, Toledo, Tulsa



**NEW
AO
RESPIRATOR
LINE**

**Pay for ONE Facepiece,
GET 7 TYPES OF PROTECTION
with the AO R5000!**

Yes, due to quick interchangeability of its threaded cartridges and disc type filter, the AO R5000 line of TWIN CARTRIDGE RESPIRATORS permits you to standardize on one respirator in protecting your workers against the multitude of dust, vapor and gas hazards commonly met with in industry. Remember, there's only one facepiece to stock and the R5000 offers greater visual area and many advanced construction features that mean added safety and comfort. Ask your nearest AO Safety Products Representative for the R5000. Tell him the respiratory hazards encountered in your operations and he will recommend the disc type filter and/or cartridges required.



**QUICK,
EASY INTERCHANGING!**

Retainer assembly accommodates both chemical cartridges and AO disc type filter — the small chemically treated filter that gives 40 times the dust protection of untreated filters. The cartridges screw in — assures a positive gas-tight seal. The felt filters stay put safely by a cover that screws onto retainer assembly.

American Optical
SAFETY PRODUCTS DIVISION

Dust Filter and Organic Vapor Cartridges,
Combinations of both, and Metal Fume
Cartridges Approved by the U. S.
Bureau of Mines

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